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COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

Three Big Names In Modern Industry

Here's an unbeatable combination: A *Reo Gold Comet* tractor in the fleet of the *Saginaw Transfer Company, Inc.*, Saginaw, Michigan, loading famous *Reo Power Lawn Mowers*.

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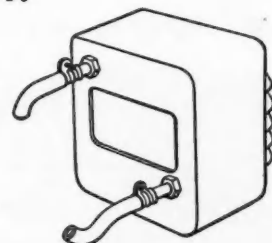
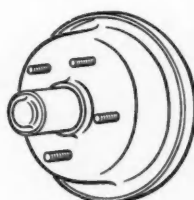
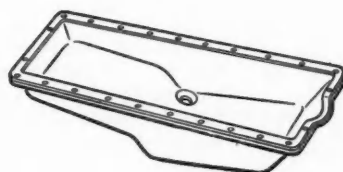
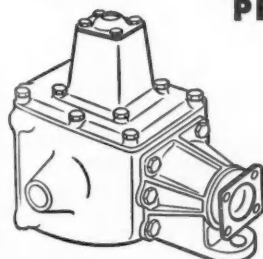
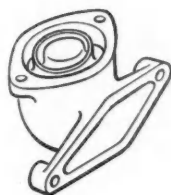
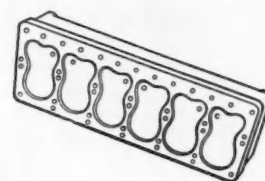
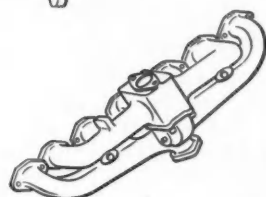
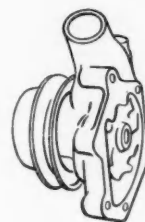
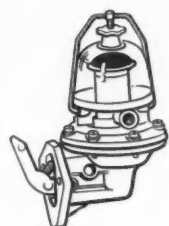
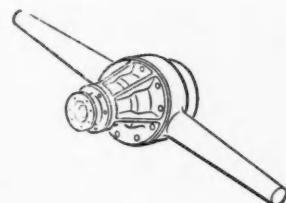
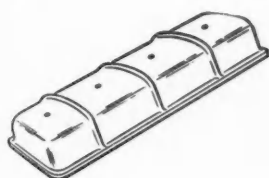
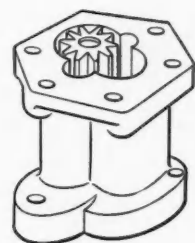
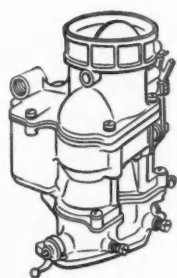
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You can turn 'em on a dime, park 'em in a jiffy—thanks to "Job-Rated" weight distribution. This advanced Dodge feature also lets you haul bigger payloads on shorter wheelbase chassis.

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 are priced with the lowest!

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*with
Form-A-Gasket*



Form-A-Gasket No. 1, Fast Drying Paste . . . Hard Setting
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If It's Assembled With Form-A-Gasket, It's Leakproof!

PERMATEX COMPANY, INC., BROOKLYN 29, N. Y.

COMMERCIAL CAR

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EDITORIAL CONTENTS

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FEATURE ARTICLES

Helm's Specialists Crews Step-up Service	49
Carolina Coach "Keeps 'Em Standard"	54
American Fleetmen Eye the British Diesels	57
Simplified System Supplies Functional Costs	58
L-P Gas Gets the Fleet OK	62
Experience Handbook—Brakes	65
Working Model Aids Smooth Changeover	67
Murder in the Fleet Field—Wheel Bearings	68
Where and When Does the Diesel Pay Off?	70
Tire Prices Favorable Despite Increases	72
Vehicle Operating Costs of the U. S. Government	74
Leroi Overhead Valve in V-8 Truck Engine	76
Boeing Turbine Tested for Truck Power	132

DEPARTMENTS

Conference Corner	6	Laugh It Off	39
Service Notes	14	Shop Hints	60
The Overload	20	New Registrations	78
The Bulletin Board	23	Truck Specifications	80
CCJ News Reports	27	Free Literature	82
Detroit Dispatch	31	New Products	83
Washington Runaround	35	Introducing	86
Fleetman's Library	126		



CCJ Reader Digest

LP Gas Gets the Fleet OK

Liquefied petroleum gas has become overnight one of the most talked of subjects in the transportation industry. Truck and bus operators are beginning to call for facts about this type fuel. Here is up-to-date information obtained from a survey of truck and bus manufacturers, engine makers, fuel suppliers as well as fleet operators. See Page 62.

Simplified Cost System

Here is an article that should be welcomed by all cost conscious fleet operators—especially those that dislike too much "paper work." This author, a well-known fleet accountant, offers one cost collecting form that covers the basic functional cost analysis requirements of common carriers, especially those engaged in interstate operations. See Page 58.

Carolina "Keeps 'em Standard"

J. W. Cole, well-known superintendent of Carolina Coach Co., in Raleigh, presents the highlights of his company's bus maintenance operations. Because the vehicles are serviced at many different shops and by many different mechanics, Cole believes it essential to adhere strictly to manufacturers' standards. See page 54.

Working Model Aids Smooth Changeover

Delaware Coach Co. has used various types of visual aids for instruction and general shop purposes. One of the best was inspired by the need of acquainting its personnel with some improvements developed for bus door opening and shutting controls. All working parts of the system were mounted on a display board so that each man could see the hook-ups and operate the controls. Details and illustrations on Page 67.

JOURNAL

with which is combined Operation & Maintenance

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Better Maintenance with Fewer Men

Helms Bakeries, on the West Coast, cut its shop personnel from 31 to 21, and achieved a higher degree of efficiency by grouping the remaining men into five specialist crews. Road calls have been reduced by 30 per cent. Parts inventory slashed from \$58,000 to \$36,000, and general maintenance costs appreciably cut. While, essentially, this is a shop rehabilitation story, the results are so outstanding that some of the reported methods may prove inspirational to fleetmen striving for higher general maintenance efficiency and economy. See Page 49.

When and Where Does the Diesel Pay?

If you are operating over 50,000 miles per year per vehicle, if you are hauling heavy loads over mountainous terrain, if your vehicles are tuning up high engine running hours, you may be missing a bet by not having diesels. Many owners in similar circumstances are saving 50 to 75 per cent in fuel, cutting fire hazards and insurance costs, enjoying fewer road delays and minor repairs with diesel engines. Here is an unbiased discussion showing advantages and shortcomings of this type power plant, the first in a series on diesel equipment. See Page 70.

COMMERCIAL CAR JOURNAL, May, 1950



St. Paul
extra heavy duty...
...and then some

This 10 cubic yard semi-trailer dump body is one of seven St. Paul Units hauling rock on a 30-mile round trip (75-minute cycle) at Harlan Dam, Nebraska. The trucks work 16 to 20 hours per day six days per week traveling over an improved dirt road with electric eyes controlling traffic at 90 degree turns.

The bodies feature double I-beam longitudinals and 4-inch I-beam outside bracing. A two-inch hardwood cushion in the floor is topped with a 1/4-inch wearing plate. Body shell is 1/4-inch steel. The hoist is the St. Paul Model 95, noted for its ability to dump heavily loaded bodies, even in badly distorted positions.

Whether you need a special body like this or a standard dump truck unit, put in a call to your St. Paul Distributor. He's a dump unit specialist ... and ready to serve you!

ST. PAUL DIVISION

GAR WOOD INDUSTRIES, INC.

2207 University Ave. S.E., Minneapolis 14, Minn.



**SURE WAY
TO REDUCE
UPKEEP
COSTS**



**Use
TEXACO
MARFAK**

**it prolongs
the life of all
chassis parts**

**TUNE IN . . . TEXACO
STAR THEATER**
starring MILTON BERLE
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every Tuesday night.
See newspaper for time
and station.



TEXACO



EVEN the roughest service won't pound or squeeze *Texaco Marfak* out of chassis bearings. This famous lubricant assures added protection against wear and rust between scheduled lubrication periods. *Texaco Marfak* saves on parts replacements, keeps equipment on the job and out of the repair shop.

In wheel bearings, use *Texaco Marfak Heavy Duty*. It seals out dirt and moisture, seals itself in — assuring safer braking. Bearings last far longer because they get full protection. *Texaco Marfak Heavy Duty* requires no seasonal change.

Still another way to reduce upkeep costs: Lubricate engines with *Texaco D-303 Motor Oil*. This oxidation resistant, detergent-dispersive oil cleans

as it lubricates . . . adds thousands of extra operating miles to motor parts . . . extends time between overhauls . . . reduces fuel consumption.

A Texaco Lubrication Engineer will gladly help you simplify your lubrication setup and reduce your maintenance costs. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N Y.

More than 350 million pounds of Marfak have been sold! ☆☆☆

Lubricants and Fuels

FOR THE TRUCKING INDUSTRY

CONFERENCE C O R N E R

PRESENTING FACTORY ENGINEERS' VIEWS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Subject: Clutch Facings

Question: Is One Type Better Than Another?

Choice of clutch facing material depends in great part upon the design, service requirements and installation. Either woven or molded types may be specified by manufacturers. Grooved linings offer advantages, but add to costs.

Heavy-Duty Woven Type Proves Most Popular

by Ira Saks

Accurate Parts Mfg. Co.

THERE are at present three standard types of facings used on all clutches, namely, molded, woven and metallic, which can also be divided into two categories, full metallic and semi-metallic.

Our own experience has proved to us that the heavy-duty woven type facings have become the most outstanding standard quality heavy-duty facing that there is on the market today. This particular type of facing is generally accepted as being the best type facing for durability, performance and smoothness of application to clutch.

There are a few fleets who have had substantial success in the use of metallic facings, but that is not generally the case, as in a good many instances these metallic facings begin to crack and peel with the least amount of misalignment on the clutch and perfect alignment in the clutch is not always easily obtained. In addition to that, as you probably know, these facings are extremely expensive plus the fact that they are very heavy and spin quite a good deal, making gear-shifting rather difficult. In other words, under ideal conditions, it is quite possible to secure satisfactory results and considerably longer mileage from a metallic facing, but that takes place only as stated above under ideal conditions.

As far as molded facings are concerned, they are fast going out of use except in a few instances when trucks use long centrifugal clutches, and even in those instances no fleet operators prefer to use a heavy-duty woven type facing.

We ourselves use about 95 per cent heavy-duty woven facings in all our plates with the exception above, where in some cases we use molded facings. Occasionally, we supply some fleet accounts with plates equipped with semi-metallic facings, since these facings are a little more flexible than the full metallic

facings and do not crack and peel quite as readily, nor are they as heavy as the full metallic facings, and therefore do not spin quite as much as the full metallic facings. These, however, are very much in the minority in use today.

THE question of best selection of clutch facing material for heavy-duty truck service, or for any service for that matter, is very closely related to mechanical condition of the clutch and to adjustment procedure. Too many operators relined clutches without properly machining the engaging metal surfaces of pressure plate and fly wheel, resulting in uneven surfaces, slipping clutches, and general dissatisfaction. When it is considered that the designing engineer selects a clutch of such and such a size to handle the torque of his engine and provide satisfactory life, relining it with parallel surfaced clutch facings operating against wavy metal surfaces results in cutting down the effective size of the clutch to that of a much smaller unit. By no stretch of the imagination could one expect a half-size clutch to do a satisfactory job, yet many operators are unhappy when it doesn't.

In general, a molded facing provides reasonably low cost, fair life, high thermal resistance but not a great deal of inherent resilience to aid in smoothing clutch engagement. It will stand a great deal of abuse, however, without disintegrating.

Woven facings have inherently longer life at low and medium temperatures but are apt to go to pieces or fail prematurely at very high temperatures. These facts frequently mislead operators into thinking that woven facings have shorter life than molded.

(TURN TO PAGE 10, PLEASE)

Adjustment and Design As Important as Lining

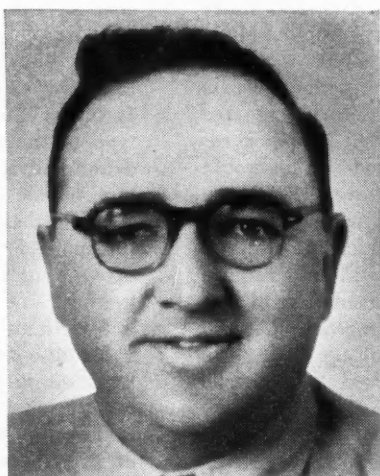
by J. R. Glazebrook

*Johns-Manville
Sales Corp.*

a great battery ...



WILLIAM H. WOODRUFF, Driver
Claussen's Bakery
Augusta, Georgia

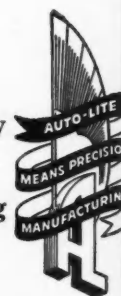


O. B. KITTLE
Garage Superintendent, Claussen's Bakery
Augusta, Georgia

"It's great to know you've always got plenty of liquid for full battery power. Sta-ful is a real help in keeping trucks on schedule.' This statement of William H. Woodruff shows how our drivers go for Sta-ful." O. B. Kittle, Garage Superintendent, Claussen's Bakery, Augusta, Georgia.

HERE'S WHAT Sta-ful DOES FOR YOU

- 1** Needs water only 1/3 as often.
- 2** Helps keep plates fully covered for abundant starting power.
- 3** Reduces time and bother of battery servicing—lasts longer too.
- 4** Helps reduce operating costs by keeping fleets on schedule.



Conference Corner

Continued from Page 6

Metallic facings (sintered metal) have extremely long life under a relatively narrow range of operating conditions. Above or below this range they may fail due to fracture and/or other troubles. Their friction is usually in a lower range than that of composition materials.

Combinations of two of the foregoing types offer interesting possibilities, particularly if judiciously selected. For example, some clutches run considerably hotter on either the pressure plate or the fly wheel side, depending upon which has the thinner metal or is poorly cooled. In these cases, a long-wearing material may be selected for the side which would normally wear down quicker, and a higher friction product used on the slower wearing side, resulting in more even service life and sometimes lower cost.

One factor of importance to heavy-duty truck operators where very low or creeper transmission gear ratios are provided, is the question of spin strength. Many manufacturers' facings are tested to spin at over six or seven thousand revolutions per minute without breaking, simply to provide a factor of safety in case the propeller shaft turns them up this fast. No truck engine could stay together at these speeds which would be equivalent to a vehicle speed of over 120 m.p.h. However, if a driver leaves his truck in creeper gear to climb a very steep grade beyond which is a dip and another sharp rise which he knows will also require the low ratio, he may leave the transmission in this gear letting the vehicle coast down the other side with engine dis-clutched. This may permit the facings to spin at such a speed that they exceed their tensile strength.

Grooved Lining Offers Many Advantages

by Lansing T. Carpenter

The Russell Mfg. Co.

or resins, the woven molded, and the metallic.

Impregnated Asbestos Millboard (molded) does not lend itself to grooving except where the grooves are cut in. Metal-Chip Molded may be grooved during the molding operation.

The woven-molded is the most widely used clutch facing today in new car production. This facing may be grooved during the molding operation without loss of mechanical strength due to the flexibility of the woven structure which permits flow of the "bis-cuit" when heat and pressure is applied.

This metallic facing has been used with some success where high temperatures are encountered. Sintered metal mixtures using a high percentage of copper are used to produce this type of clutch facing. They have been troublesome on some occasions in that they cause abrasion of the surfaces against which they operate. Greater spring pressures are required sometimes because of the lower friction of the facings. These facings are costly from a price standpoint.

Grooved clutch facings were introduced with the

development of a clutch plate which provided practically full contact between the facing and the flywheel and/or pressure plate. Some means was needed to prevent the facing from adhering to the metal surface by breaking the vacuum which developed. Subsequent tests on other types of plates showed that grooved facings produced better clutch action, and have therefore been adopted as standard in the passenger car field. They are also used in the 10 in., 11 in., and 12 in. truck clutches.

Grooves assist in throwing off abraded material which may accumulate between the facings and the metal contact surfaces. They also assist in cooling. This is beneficial because heat contributes to the breakdown of any friction material. We do not believe it necessary to groove the larger heavy-duty facings as the design of the clutch plates do not require it and it would add to the cost of the product.

FACINGS are roughly divided into three types, commonly known as molded, woven, and metallic or semi-metallic. Each type has staunch advocates who dislike any other type. Even car and truck manufacturers may favor one type to the exclusion of all others. Each type has definite advantages which combine favorably with certain vehicle designs or operating conditions.

While there is a predominant use of woven facings, the molded type is still preferred to a considerable extent, and a combination of the two—molded on the flywheel side and woven on the pressure plate side—is sometimes used.

Metallic and semi-metallic facings are longer lived than woven or molded, but because of their firmer texture, slightly greater flywheel and pressure plate surface wear may occur. This is outweighed, however, by the much longer intervals which elapse between clutch plate replacements, and this type is therefore much favored for taxi cabs, police cars, by fleet owners, or for any vehicle used for almost continuous service, and for which the tear-down periods at best, come all too soon.

The use of grooves on the wearing sides of facings has long been a controversial subject, some claiming they are a distinct advantage, while others claim no such advantage exists. Be that as it may, the fact remains that many passenger car facings and some truck facings are now grooved. Most of the molded and woven facings used on Monmouth flexible center plates are grooved to agree with original equipment practice.

The facings on clutch plates gradually wear thinner from continued rubbing against the pressure plate and flywheel. These also wear somewhat, but normally the greatest wear by far is on the facings. Efforts are constantly being made to produce facing materials having increased life but without at the same time increasing flywheel and pressure plate wear. Certain restrictive elements enter into the problem however. If a facing is too hard, it may wear longer, but the flywheel and pressure plate will usually show more wear. Also a satisfactory coefficient of friction must be maintained in order to transmit maximum power without slippage, and yet abrasive substances must be avoided.

(TURN TO PAGE 106, PLEASE)

Molded Type Is Preferred by Many

by J. E. Bradley

*Monmouth Products
Division of Cleveland
Graphite Bronze*

Line is COMPLETE!

You can get ALL your brake lining requirements from a single source...

your WAGNER Jobber

It will pay you to standardize on Wagner CoMaX Brake Lining. This line is complete—and is available in sets, rolls, blocks, slabs and cut segments—to provide the correct lining for every job.

Here's a quick check-list of some of the desirable qualities that make CoMaX best for *all* needs:

1. **UNIFORM TEXTURE** assures same type of brake surface always being exposed to the drum.
2. **CONSTANT FRICTION** permits smooth even deceleration.

3. **NON-COMPRESSIBLE**—and won't swell. Does not require frequent adjustment.

4. **CONTAINS NO ABRASIVE** material. Easy on drums.

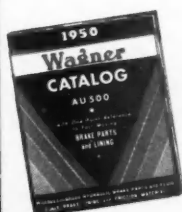
5. **LONG-LIVED** and age proof—does not deteriorate with age.

* * *

Wagner research and experience in brakes is your assurance of top performance from every job you do with Wagner CoMaX Brake Lining... Consult your nearest Wagner Jobber, or write us for details on complete line.

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AIR BRAKES • TACHOGRAPHS
ELECTRIC MOTORS • TRANSFORMERS
INDUSTRIAL CRANE BRIDGE BRAKES**



SERVICE NOTES

Briefed for Fleets From Manufacturers' Bulletins

● Chevrolet ●

Steering Gear Leakage

To prevent leakage of gears after a major service overhaul, where all of the original factory installed lubricant has been washed out of the assembly and is to be refilled with SAE 90 Multi-Purpose gear lubricant, the threads of the adjuster cup, side cover bolts and lash adjuster should be coated with a suitable non-drying, oil resistant sealing compound such as Permatex No. 2 or its equivalent. Extreme care should be exercised in applying this compound to the bearing adjuster cup so that the compound is kept away from the bearing race. The compound should not be applied to the female threads.

Cleaning Brake Drums

New brake drums in parts stock are given a light coating of rust proofing oil to prevent the formation of rust on the critical braking surfaces during the time that the drums are in storage.

This rust proofing oil must be carefully removed before the drum is placed in service to prevent any of this oil from getting on the brake shoe facings, which might cause an extreme brake grab condition.

It is recommended that naphtha or carbon tetrachloride be used to clean the oil from the braking surface of the new brake drums before they are placed in service to insure the cleanest possible surface.

Gasoline or kerosene should not be used as there is danger that a portion of the diluted oily substance may be left on the braking surface that may later cause difficulty.

● Plymouth ●

Universal Joints

One of the important reasons for periodic lubrication of the universal joints every 20,000 miles or every two years is to visually inspect the parts for wear. This can only be done by disassembling the joint. "Hypodermic" type greasers now on the market that pierce the protective dust covers on the universal joints for so-called "short cut" lubrication are not recommended. The use of this type greaser may cause failure of the universal joint by allowing the entry of dust and water and the escape of lubricant by centrifugal force during high speed operation. In addition, injection type greasers make it possible to overfill the universal joint, causing excess lubricant to run into the outer boot, and result in objectionable shaft vibration and early boot failure.

● Studebaker ●

Propeller Shaft Modifications

Effective with truck Serial No. R10-20524, a two-piece propeller shaft is now being used in all 2R10 model trucks equipped with an overdrive transmission. Use of the two-piece shaft with overdrive transmission is expected to eliminate the so-called "pipe organ" noise occasionally heard on this model when equipped with single propeller shaft.

The rear shaft and support bearing assembly parts used on other 2R10 model trucks are used in this installation with a new front propeller shaft assembly, Part No. 677168X6.

The diameter of the front propeller shaft splines on models 2R15, 2R16A, 2R17A has been increased from 1.248 in. to 1.373 in. as a precaution against possible twisting or shearing of the splined end. The diameter of the shaft in the support bearing area has not been changed thus making it possible to install the new type front shafts in earlier model trucks.

● IHC ●

L Line Modifications

A change has been made to the hand brake lever bracket used on the L-110, L-120 Series chassis models to provide sufficient clearance between the hand brake lever and the cowl inner panel. This change was accomplished by changing the angle of the mounting flanges on the hand brake lever bracket.

The heater switch bracket used in conjunction with the recirculating type hot water heater switch on L-line chassis has been redesigned to a more rigid mounting to eliminate a possible short circuit in heater-switch.

Construction of the windshield glass seal has been changed to overcome leakage. To perform a satisfactory windshield installation job, the glass and windshield opening flanges must be cleaned of all foreign matter and also the old sealing compound removed. Sealing compound should not be used with the new seal unless leaks develop. The new seal is interchangeable with the old and carried under part number 80 304 R2.

Production chassis on the L-160 to L-184 models will have the starting crank hole in the grille support crossmember lowered $\frac{1}{4}$ in. to allow starting crank to enter.



145-h.p. Series F-8 Big Job, one of over 175 Ford Economy Truck models, has a G. T. W. rating of 39,000 lbs.

"183,000 miles with 30,000 lb. payloads — up to 8 miles per gallon!" — SAYS ROMAN J. BAIER
BAIER TANK TRANSPORT, BLOOMER, WISCONSIN

"OUR FORD F-8 has traveled 183,000 miles carrying 30,000 lb. payloads (50,000 lbs. gross)" says R. J. Baier of Baier Tank Transport, located at Bloomer, Wisconsin.

"Our gasoline consumption ranges from 6 to 8 miles per gallon. The upkeep and operating expense has been very nominal in comparison to the higher priced trucks in our fleet. I would strongly recommend this truck to anyone who needs power at low cost."

Ford Trucks do more work! They're Bonus Built with big reserves of strength and power to handle big loads. *Ford trucking costs less!* Volume production know-how results in low original price. Truck engineering know-how keeps operating costs low.

See your Ford Dealer today! Choose from over 175 models ranging from light duty Pickups to 145-h.p. Big Jobs. There's a Ford Truck to fit your job and your budget. And, remember, Ford Trucks "do more per dollar!"

Ford Trucking Costs Less Because— FORD TRUCKS LAST LONGER

Using latest registration data on 6,592,000 trucks, life insurance experts prove Ford Trucks last longer!

SAVE WITH FORD! AMERICA'S NO.1 TRUCK VALUE!

- ★**SAVE GAS** with Ford Loadomatic Ignition and High Turbulence combustion chambers.
- ★**SAVE OIL** with Ford Flightlight aluminum alloy pistons. Cam ground for oil-saving fit at operating temperatures.
- ★**SAVE WEAR** with pressure lubricated main and crankpin bearings, Double Channel frame, extra heavy duty axles, big brakes (up to 16-in. by 5-in.)
- ★**SAVE ON REPAIRS** with demountable brake drums, brake inspection hole, engine-top setting of accessories, plus nationwide service from over 6,400 Ford Dealers.
- ★**SAVE TIME** with Ford reliability and performance. The only eight-cylinder engines in trucking. Only Ford gives you a choice of V-8 or Six!

MAIL THIS COUPON TODAY!

FORD Division of FORD MOTOR COMPANY
 3201 Schaefer Rd., Dearborn, Mich.

Send me without charge or obligation, detail specifications on Ford Trucks for 1950.

FULL LINE ☐ HEAVY DUTY MODELS ☐
 LIGHT MODELS ☐ EXTRA HEAVY DUTY MODELS ☐

Name _____
 (Please print plainly)

Address _____

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**LOOKING FOR THE
TOP PERFORMER?**

**CHOOSE
PACKARD
LOW TENSION
CABLE** *with*
"249 compound"

You have a top performer when you stock and use Packard low tension cable with amazing "249 compound" insulation. This protective insulation, enclosed in Packard's well-known braid and lacquer exterior, makes Packard cable superior to all other low tension automotive cable.

Packard low tension cable has greater DIELECTRIC STRENGTH, GREATER RESISTANCE TO CHEMICALS, OILS, ABRASION, EXTREME TEMPERATURES and it will not HARDEN and CRACK. "249 compound" insulation lasts longer, will not support combustion. And what's really important in the shop . . . Packard low tension cable strips easily and cleanly to save time and trouble.

DID 'YA KNOW?

Packard low tension cable with "249 compound" was proved by test to be better than ordinary low tension cable by these percentages:

HIGH TEMPERATURE, 67% increase
DIELECTRIC, 70% better
CRUSHING, 67% stronger
ABRASION, 130% tougher
OIL, 125% increase

And only Packard low tension cable has all these plus features at no increase in price.

Packard Pete



Packard
REG. U.S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio



FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

**"Simple Arithmetic Proves-
it Pays to Buy
TRAILMOBILE"**



RICHARD L. GETTIG,
Vice Pres. & Gen. Mgr.
BEATTY MOTOR
EXPRESS, INC.
Washington, Pa.



**2500 Pounds Extra Payload in This All-
Aluminum Trailmobile Means \$2632.24
Additional Revenue per Trailer Every
Year to Beatty Motor Express, Inc.**

As Mr. Gettig says, "It's easy to figure the answer to prove that each TRAILMOBILE will pay for itself in added revenue hauled. That's why we feel that TRAILMOBILE is truly the answer to modern day motor truck transportation!"

From every part of the country TRAILMOBILE is getting letters of praise from fleet operators. All these operators have found proof in TRAILMOBILE performance that they give the most economical, efficient answer in motor truck transportation.

Write for the complete TRAILMOBILE Story. Learn how the lighter weight, amazing strength and practically maintenance-free operation can bring added revenue to your operation.



**THE
TRAILMOBILE
COMPANY**

Cincinnati 9, Ohio • Berkeley 2, California

MAIL THIS COUPON NOW!

THE TRAILMOBILE CO.

31st & Robertson, Cincinnati 9, Ohio

I am very much interested in the new Trailmobile All-Aluminum Trailers. Please send me complete descriptive information.

Name

Business Address

City State

My Position

The OVERLOAD

E D I T O R I A L C O M M E N T

Can You Wait Six Years to Save \$200,000?

AS this is being written on a Tuesday morning, last night we found ourselves enjoying the fine entertainment offered on the "Railroad Hour." But, with the exception of the Westinghouse Corp. (See Phelps' Fantasy, April, CCJ, Page 256), we wonder how many shippers are inspired by the slogan—"It's good business to do business with the railroads."

We wonder if a great many more shippers might find greater inspiration in figures like these which we came across the other day in the hands of an eastern manufacturer. It seems that this particular concern has been receiving *inbound* shipments of raw materials by rail from four principal sources. The average monthly charges for this service work out like this:

Source	Approx. Mileage	Rate per 100 lb.	Tons per Month	Actual Cost
1.....	135	\$0.35	200	\$1400
2.....	336	0.50	400	4000
3.....	353	0.54	25	270
4.....	412	0.56	25	280
Totals per month.			650	\$5950

For 550 tons of *outbound* shipment of finished products to points at, or along routes to, his raw material sources, the manufacturer was paying an additional \$4,060 for a grand total of \$10,010.

Then the shipper investigated the possibilities of doing the same job with privately owned trucks. He found that to do it with legal loads (average 12½ tons) and with strict adherence to ICC hours of service regulations would require four truck-tractors, four 32-ft. trailers, seven drivers and one helper. The scheduling would work out like this:

Source & Destination	Trip Miles	No. Round Trips	Miles per Month
1.....	135	16	4,320
2.....	336	32	21,504
3.....	353	2	1,412
4.....	412	2	1,648
Totals.....		52	28,884

Six of the drivers, working in pairs, would handle the long hauls to sources 2, 3 and 4, while the seventh driver and the helper could handle the runs to the number one source.

Projected *monthly* costs breakdown as follows:

Equipment. (Four tractors and four trailers depreciated over a six-year period, plus basic TAXES)	\$ 591.00
Personnel. (Seven drivers and one helper based on 40-hour week, plus five hours overtime)	2,932.50
Insurance. (Fire, theft, cargo, liability and collision)	352.00
Maintenance. (Figured on a guaranteed program offered by a leading truck builder)	500.00
Gasoline. (4815 gal. @ 20 cents, including TAXES)	963.00
Tires. (2 complete sets per year per truck, including TAXES)	800.00
Bridge & Highway Tolls	530.80
Driver meals en route	516.00
TOTAL	\$7,185.30

This figure, incidentally, based on actual projected cost, works out to just under 25 cents per mile, which is about half-way between the ICC estimate for trucks of this size of 27½ cents and the figures of a leading truck manufacturer at 22 cents.

It is assumed that docking facilities and parking lots now in existence could be utilized and that supervisory and bookkeeping requirements could be absorbed easily by the present shipping department.

Now let's see how rail and truck totals compare:

	Per Month	Per Year	For 6 Yrs.*
Rail cost.....	\$10,010	\$120,120	\$720,720
Truck cost.....	7,185	86,220	517,320
SAVINGS.....	\$2,825	\$33,900	\$203,400

* Based on the depreciation period for the trucks.

This appears to be as good a spot as any to state our long-established policy that we believe there is a time and place for *all* forms of transportation. But we strongly question the merits of asking the American public to swallow the slogan—"It's good business to do business with the railroads"—per se. And we can think of a good many folks who won't.

Bart Rawson
Editor

ccj REPORTS

on News of the Industry

ATA Spring Meeting Program

The ATA Annual Spring Meeting, Chicago, May 8-12, is expected to attract over 500 truckers and guests who will check in at the Morrison Hotel on Monday to attend meetings of the three participating councils. Two general luncheons have been scheduled. Henry E. English will speak Tuesday on the subject of "Are You Public Relations Minded?" and F. K. Glynn, of American Tel. & Tel., will develop the subject of "Gadgetitis" at the joint meeting at noon Thursday.

The Council of Safety Supervisors has arranged a program covering talks on causes of highway accidents, psychophysical testing of drivers, uses of operation recorders and road patrol problems.

The Terminal Operations Council has scheduled speeches on checking systems for highway freight terminals, training courses for terminal managers, selecting and training branch managers, insurance problems, employee discipline, among other subjects.

The Equipment and Maintenance Council is featuring papers on predicting performance of vehicles, road failures, tire repair and recapping, a discussion of sizes and weights, to name only a few.

An Exhaust Noise and Muffler Conference has been

scheduled by the Equipment and Advisory Committee. Invitations have been extended to chief engineers of truck and truck-tractor manufacturers and to engineers of muffler manufacturers. Meeting with these manufacturers' representatives will be the ATA Equipment Advisory Committee and other motor carrier operating engineers.

On the agenda for the conference are matters such as availability of corrosion resistance metals and coatings for longer life, design characteristics for adequate silencing life under full load operation, and testing procedures for mufflers. Also of importance in the conference is the market availability of adequate mufflers, either as optional original equipment or from dealers and jobbers in the automotive aftermarket.

Private Carriers Fight Ruling

The "for-hire" trucking industry is not giving up in its efforts to harass and hamstring the private motor truck owner and to restrict, if not altogether eliminate, his lawful field of operation. Although a significant victory was won recently before the ICC, a further

(TURN TO PAGE 150, PLEASE)

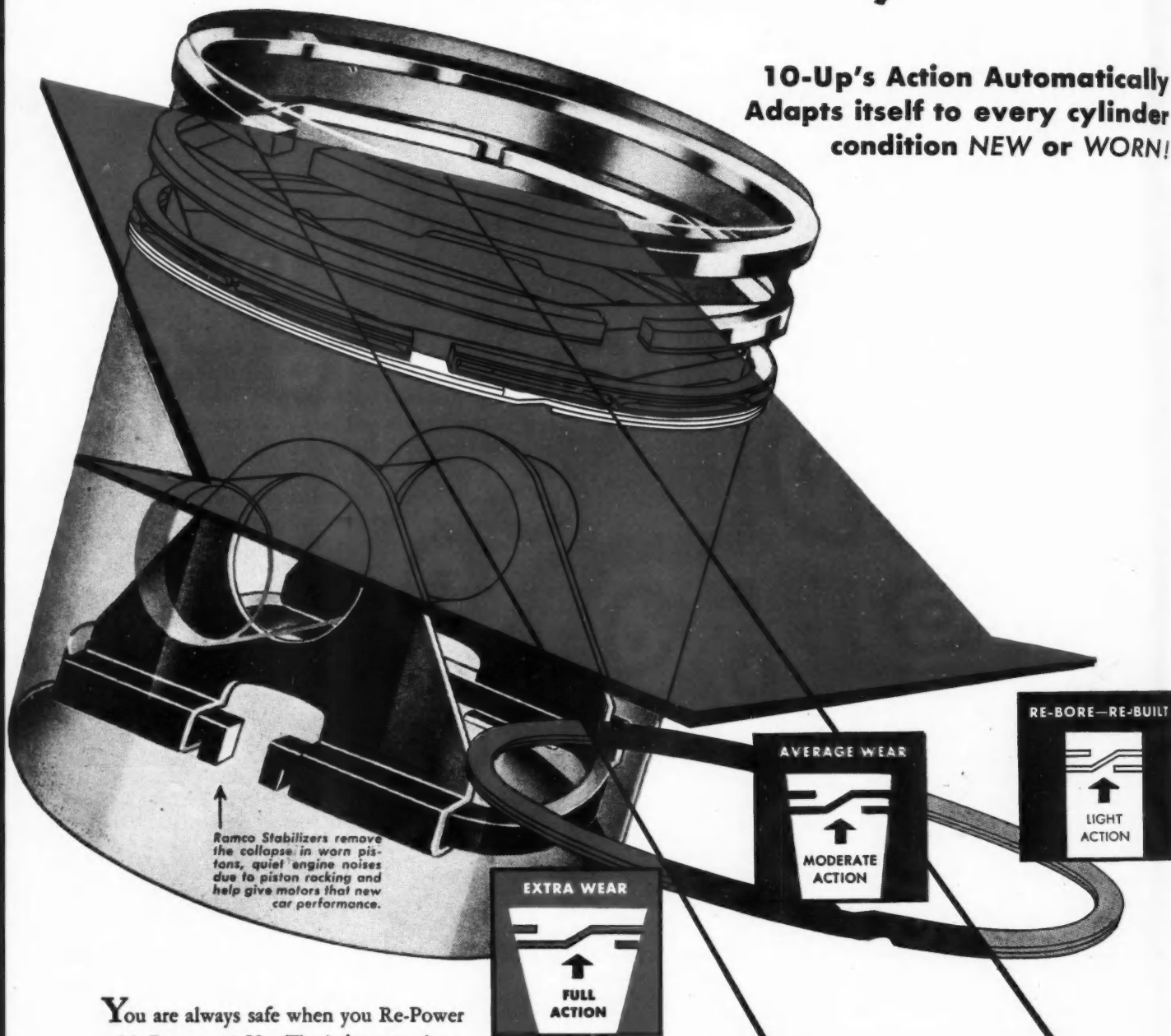
DATES and DOINGS

MAY 8-12—American Trucking Assns. Spring Meeting, Hotel Morrison, Chicago, Ill.
MAY 8-12—Fleet Supervisors Training Course, So. Dakota State College, Brookings, S. D.
MAY 11-13—Washington Motor Transport Assn. Annual Convention, Olympic Hotel, Seattle, Wash.
MAY 15-19—Fleet Supervisors Training Course, Northeastern University, Boston, Mass.
MAY 18—Rhode Island Truck Owners Assn. Annual Convention, Narragansett Hotel, Providence, R. I.
MAY 22-26—Fleet Supervisors Training Course, University of Connecticut, Storrs, Conn.
JUNE 1—Central Motor Freight Assn. Annual Convention, Palmer House, Chicago, Ill.
JUNE 1-3—Utah Motor Transport Assn. Annual Convention, Hotel Utah, Salt Lake City, Utah.
JUNE 4-9—Society of Automotive Engineers Summer Meeting, French Lick Springs Hotel, French Lick, Indiana.
JUNE 5-9—Fleet Supervisors Training Course, University of Kentucky, Lexington, Ky.
JUNE 12-16—American Society of Mechanical Engineers (4th Annual Materials Handling & Exhibit) International Amphitheater, Chicago, Ill.
JUNE 12-16—Fleet Supervisors Training Course, Marshall College, Huntington, W. Va.
JUNE 19-23—American Society of Mechanical Engineers, Hotel Statler, St. Louis, Mo.
JUNE 23-24—Pennsylvania Motor Truck Assn. Annual Meeting, Penn Harris Hotel, Harrisburg, Penna.
JUNE 22-25—Automotive Council of Los Angeles (2nd Annual

National Truck, Trailer & Equipment Show) Pan Pacific Auditorium, Los Angeles.
JUNE 26-30—Fleet Supervisors Training Course, University of New Hampshire, Durham, N. H.
July 10-14—Fleet Supervisors Training Course, Northwestern University, Evanston, Ill.
AUG. 14-16—Society of Automotive Engineers (West Coast Meeting) Biltmore Hotel, Los Angeles, Calif.
SEPT. 4-6—Mississippi Transport Assn., Inc., Annual Convention, Buena Vista Hotel, Biloxi, Miss.
SEPT. 11-12—Wisconsin Motor Carriers Assn., Annual Convention, Lake Lawn Resort, Delavan, Wis.
SEPT. 11-14—American Assn. Motor Vehicle Administrators, Annual Meeting, Multnomah Hotel, Portland, Ore.
SEPT. 12-14—Society of Automotive Engineers, Hotel Schroeder, Milwaukee, Wis.
SEPT. 13-14—Tennessee Motor Transport Assn., Annual Convention, Andrew Jackson Hotel, Nashville, Tenn.
SEPT. 14-16—Virginia Highway Users Assn., Annual Convention, Hotel Chamberlin, Old Point Comfort, Va.
SEPT. 15-16—Michigan Trucking Assn., Annual Convention, Park Place Hotel, Traverse City, Mich.
SEPT. 16—Massachusetts Motor Truck Assn., Inc., Annual Convention, Swampscott, Mass., New Ocean House.
OCT. 2-6—American Trucking Assn. Annual Meeting, Waldorf-Astoria Hotel, New York.
OCT. 16-18—Society Automotive Engineers (Transport Meeting), Hotel Statler, New York.
DEC. 4-8—Automotive Service Industries Show, Navy Pier, Chicago.

Genuinely All-Purpose!

10-Up's Action Automatically Adapts itself to every cylinder condition NEW or WORN!



You are always safe when you Re-Power with Ramco 10-Up. That's because these

rings are engineered to automatically adjust their action in terms of the existing cylinder condition. You need never fear you're using a too severe ring for a Re-Bore... or a too gentle ring for extreme wear...

Ramco is always the just right ring... for every condition that can be corrected with piston rings!

Ramco 10-Ups are ideal for all Truck and Fleet

Re-Powering Jobs... Re-Ring or Re-Bore!

See your Ramco Jobber and install a set in your next job. Ramsey Corporation, St. Louis, Missouri.

RAMCO
RE-POWERING
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Year after Year, Better and Better, Yet, UNCHANGED in BASIC DESIGN Since Originated by Ramco Many Years Ago...

RAMCO 10up

ALL-PURPOSE PISTON RING

Unchanged except for the Better through continuous engineering perfection of detail. No obsolescence loss or risk of performance disappointment due to frequent design changes.

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DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

Truck Sales Surge Upwards

Truck sales managers have been happily amazed at the upward surge in truck sales during the past few months. Actually, the trend started last Fall, but because of the gloomy outlook at that time advance commitments for parts had been reduced by most companies so that they could not wind up the assembly lines as fast as desired. The pick up is particularly good in the medium weight groups with demand for lights still good, but not accounting for nearly as great a percentage of the total as they did last year. Truck registrations are reported to be running slightly higher than last year to date and both Ford and Chevrolet, large builders in the medium weight field, are hitting new sales records. During March, Chevrolet sold 37,660 units, an all-time high and 12 per cent better than the previous high month, March, 1949. For the first quarter of this year Ford truck sales broke all records for that period and March sales were the highest in history. The total of 30,426 trucks sold during March was 73 per cent higher than a year ago. The reasons for the upturn are thought to be the unusually high rate of scrappage last year, the expanding use of trucks, and a very good replacement market. It is estimated that about 2½ million of the total 7.67 million trucks now in use are ten or more years old. Trailer business also is apparently on the up grade with Fruehauf reporting first quarter sales \$2.75 million greater than for the same period a year ago and the first ten days of April nearly double that of the first ten days of March.

GMC Identification Plate

GMC has taken a helpful step forward in helping owners to identify model, serial numbers, engine type and other information needed when ordering replacement parts. The company now is attaching a service parts identification plate to the inside of the glove box door for quick reference. Also included are type numbers for the front axle, rear axle, main and auxiliary transmission, torque divider and wheels, and supplementary information such as axle ratio, main transmission speeds, number of front, rear and auxiliary spring leaves, and number of wheel studs.

Auto Transport Accident Ratio Low

Although the number of new cars and trucks delivered by automobile transport last year was the heaviest on record, the accident ratio was considerably lower than the previous year, accounting for only 1.35 per 100,000 vehicle miles. The National Automobile Transporters Assn. reports that 3½ million new cars and trucks were delivered by the industry

last year with total mileage amounting to more than 400 million miles. Of that total 320 million miles were by truckaway units and the remaining 80 million miles was handled by the driveaway method.

Trailer Coupling Ready

ATA has invited the comment and suggestions of fleet operators on a standard jumper couple plug and socket for semi-trailers and combinations. Details of the device were worked out by the ATA committee in cooperation with manufacturers of such equipment. It probably will be adopted at the Spring Meeting this month in Chicago.

Differential Lock Under Test

It appears that the recent publicity on a new type locking truck differential being developed by the Ordnance Department was premature. Actually, such a device is in the works, but testing has not yet been completed. It also is understood that an independent outside manufacturer is working with the Army on such a differential.

Milk Concentrate Developed

Development work now underway on frozen milk concentrate may have a profound effect on the entire distribution system of milk by door-to-door delivery trucks. Companies now in the citrus juice concentrate business are working on a process to dehydrate and freeze milk, with the customer adding water to bring volume and quality back to the original level at the time of use. If successful and widely adopted, the impact on the truck distribution of dairy products would be tremendous since one unit could handle the equivalent of several trucks carrying fluid milk and delivery would be far less frequent. Some observers say it might do away with the door-to-door delivery since the concentrate would be of small bulk and easily handled in stores, with customers buying a week or more supply at one time and keeping it in the household refrigerator. It is reported that the development may come within the next two or three years.

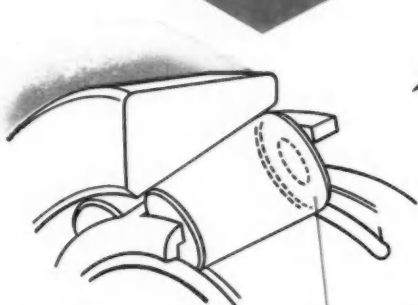
Protest Anti-Truck Speech

We have several reports of explosive repercussions from the anti-truck speech made by a Westinghouse vice president recently in which he stated that his company henceforth would use rail transportation wherever possible. It is understood that the company has received a deluge of mail from truckers and that several

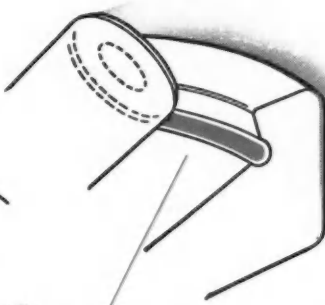
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BOWER BEARINGS ARE

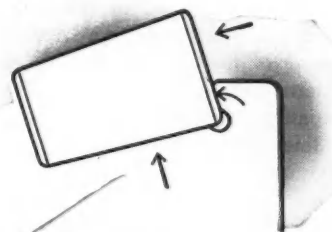
SPHER-O-HONED



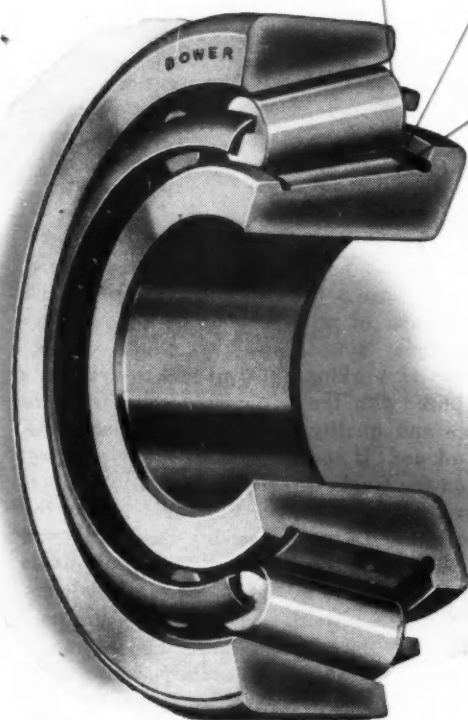
SPHER—Stands for generated spherical roll-head and flange surfaces designed and manufactured to the exact contour they would otherwise acquire in use. Alignment is improved; wear minimized.



O—Stands for the liberal oil groove which assures a generous supply of lubricant at the critical point where the roll-head operates against the flange, greatly reducing destructive friction.



HONED—Stands for hard, durable races which are honed to micro-inch smoothness. This bonus of precision eliminates the problem of run-out and also prolongs the life of the bearing.



...to improve your product
and your plant equipment, too!

Look closely at Bower Spher-O-Honed bearings. Note these basic refinements in design and construction—generated spherical roll-head and flange surfaces; large oil grooves; precise, durable races.

You'll see they can benefit your manufacturing operation in two distinct ways:

Installed in your product, Bower bearings contribute positive dependability—wear resistance—long life. They can help make yours a better product, better able to meet competition.

Installed in your plant equipment, Bower bearings guard the precision of your machines—boost efficiency—reduce maintenance problems. They improve your ability to produce a quality product.

Whatever you manufacture, from limousines to bulldozers—and whatever plant equipment you use, from machine tools to lift trucks—it will pay you to standardize on Bower bearings.

BOWER ROLLER BEARING COMPANY, DETROIT 14, MICH.

BOWER
ROLLER BEARINGS





WASHINGTON RUNAROUND

by GENE HARDY Washington Correspondent

Rails Have Their Say

Hearings before the Senate Interstate and Foreign Commerce subcommittee, which is hoping to come up with legislation amending the national transportation policy, were opened by the railroads with the same monotonous, anti-truck propaganda that has long characterized what passes for railroad public relations.

Typical of the testimony are the following statements excerpted from the presentations of three rail spokesmen:

"Large, heavy trucks do not pay a fair share of providing and maintaining the nation's highways and, in addition, they are causing serious damage to the highways over which they operate."

Diversion of traffic (from the railroads) "in large degree is due to subsidies and other advantages afforded by the Government to other forms of transportation."

There should be a new transportation policy "under which promotional and subsidy aids would not be furnished to any one form without the fullest consideration of the effect on other forms."

Trucking industry representatives had not begun their testimony as this issue of CCJ went to the printers.

ICC Freeze on Juice Hauling

Last December in his transportation report to President Truman, Commerce Secretary Sawyer said, among other things, "if another type carrier or another carrier of the same type can perform the service at a profit, it is entitled to the business and the carriers which are being protected should restrict themselves to operations in which they have a clear economic advantage."

The Interstate Commerce Commission was undoubtedly one of the agencies to which this comment was directed. Protection of the rail interests has been the result of many ICC decisions where it was a case of rail vs. truck. While ICC always manages to stay within its legal authority, it conveniently avoids the economics of the situation of rail interests are in jeopardy.

The latest case where this is evident and which has stirred the ire of trucking interests involves the transportation of frozen citrus juice concentrates from Florida. This business has boomed in recent years. Some 30 million gallons will probably be shipped this year—a four-fold increase over 1949. Shippers prefer truck transportation, because of better temperature control in refrigerated trucks and trailers. They claim that the product deteriorates too fast when transported by rail.

If allowed to develop demands for trucking service, it is estimated that trucks would have hauled 85 per cent of this year's crop. The ICC, however, stepped

in with an order which will restrict trucks to an estimated 50 per cent of the business.

In its first ruling, ICC granted temporary operating rights, but refused to permit transportation by truck to any warehouse located on a rail siding and having capacity for 36,000 pounds of the frozen citrus concentrates.

This order brought immediate squawks from both shippers and truckers. The ICC order was modified to eliminate the above restriction, but the specialized truckers handling this product are now prohibited from adding additional equipment beyond that which they had on order on March 21. They may not increase their fleets regardless of the demand for their services.

The ICC hides behind the usual answers when confronted with this case. Officials claim that it is being done to protect the truckers. They point out that the existing operating certificates are only temporary and that it may be some years until it is decided whether to grant permanent rights. The reasoning is that the truckers might expand their fleets and then not be granted permanent rights.

Army Tests Reclaimed Oil

The Army is showing increasing interest in reclaimed lubricating oil. A trial program is now in progress to determine (a) collection procedures for reclaimed oil from automotive crankcases; and (b) refining procedures to produce an SAE 30 grade mineral base lubricating oil. Actual refining will be done by private business. The re-refined oil will then be tested, using new and re-refined oil in all automotive ground vehicles. Later tests will determine types of additives needed to provide the necessary grades and weights for the several uses of lubricating oil.

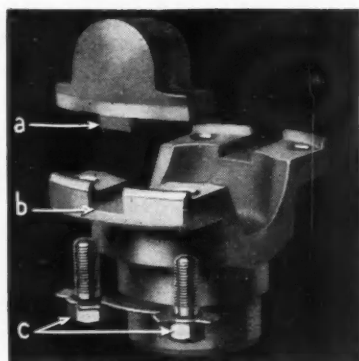
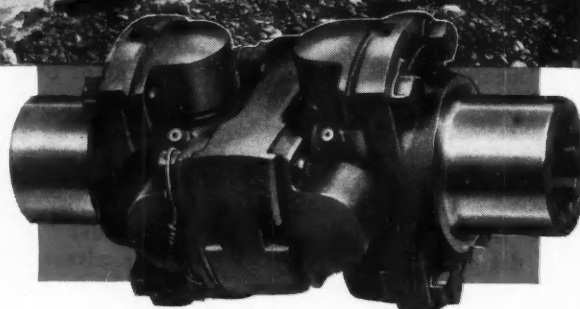
... and Tire Quality

New Federal specifications for motor-vehicle tires are in the works. The Bureau of Federal Supply expects to spend \$150,000 to thoroughly test tires so that an acceptable list of tires can be established. It is estimated that both the list and specifications will save the Government \$2.4 million a year through increased life and mileage on average annual tire purchase of \$12 million. Tires are now bought from a variety of manufacturers without any checks on quality. Mileage analysis on Post Office trucks, for example, shows very large differences in mileage obtained, as much as 2 to 1 variations, between the best tires and the poorest.

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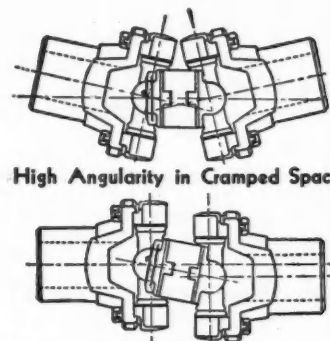


Modern Crawler tractor design requires a F-L-E-X-I-B-L-E connection between the engine and transmission. MECHANICS Close-Coupled Type UNIVERSAL JOINTS not only provide for high angularity within cramped space but compensate for out-of-alignment conditions. The shocks and strains that crawler tractors encounter in heavy duty work often are so great



Drive Thru Strong KEYS (a) That Fit into Keyways (b) Screwbolts (c) Do Not Carry Any of the Torque Load.

that they temporarily twist the tractor frame. MECHANICS Close-Coupled Type UNIVERSAL JOINTS are designed to provide the F-L-E-X-I-B-I-L-I-T-Y needed to make efficient operation possible under such adverse conditions. MECHANICS exclusive KEY method of driving has the highest safety factor, transmits the most torque, and averts costly breakdowns that result from driving through bolts or screws that work loose. Let our engineers show you how these MECHANICS advantages will benefit your product.



MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2034 Harrison Avenue, Rockford, Illinois

MECHANICS

Roller Bearing



UNIVERSAL JOINTS

For Cars • Trucks • Busses and Industrial Equipment

The director of safety was throwing a big dinner for a group of safety supervisors. With carving knife in hand, he made a grand gesture as he sliced into the beautiful, done-to-perfection turkey. Frowning, he tried another slice, then sent for Sam.

"Didn't I tell you I wanted a domestic bird?" he thundered.

"Yah suh, dat's a d'mestic, corn-fed fowl."

"Well, what about these shot I'm finding?"

Sam shuffled from one foot to the other. "Dat shot, sir, were meant fo' me."

CCJ

Gorgeous Gertie, an attractive little blonde golddigger in her middle flirties, says she firmly believes that the greatest achievement in life is making a well-heeled truck driver Stop, Look, and Loosen.

CCJ

The truck mechanic was newly married. His bride, needing a few extra doo-dads, sent him on a shopping errand. Entering the variety store, the mechanic hesitatingly approached a sales clerk and said, "I was asked to buy either a casserole or a camisole. I can't remember which."

"That's easy enough to figure out," replied the obliging clerk. "Is the chicken dead or alive?"

CCJ

The elderly Maintenance Superintendent had served his company long and faithfully. At last he was retiring, and all the employees from the big boss on down had gathered at a dinner in his honor. Just as the dessert was being served, he was heard to groan: "Well, it has come at last. Total paralysis of the left leg! I've feared it for years."

"If it will relieve your mind any," whispered the sweet and more or less demure young stenographer sitting at his left, "it's my leg you've been feeling."

Rate Clerk: "After I get off the bus, which way do I turn to get to your house?"

New Uh Hunny: "Why, right in front of you on the corner you'll see a candy store—a very nice candy store—and—er—when you come out you walk two blocks east."

CCJ

Traffic Cop: "How did you knock this pedestrian down?"

Weavin' Willie: "I didn't. I just pulled up to him, stopped my truck to wait for him to pass, and he fainted."



"Sounded to me like a blowout on the left rear"



LAUGH IT OFF

The Superintendent of Drivers had given his Safety Supervisor instructions to break in a new student driver. The Safety Supervisor and the new man did not hit it off so well. Later, the Superintendent asked how the new man was making out—if he was making any progress.

"Progress?" snorted the Safety Supervisor angrily. "Oh, yes, there's been a lot of progress. I've taught that man all I know and he is still an ignorant fool."

CCJ

Wife: "What happened when you asked that old skinflint of a boss for a raise today?"

Traffic Rate Clerk: "Why he was like a lamb."

Wife: "What did he say?"

Rate Clerk: "Baa!"

CCJ

A KISSIN' FOOL IS LIZZIE GUMP
SHE KISSES LIKE A SUCTION PUMP.

CCJ

Radiator Repairman's Wife: "I think that my little boy is taking that western television serial too seriously!"


Nosey Neighbor: "Why?"

Radiator Repairman's Wife: "He's been going around branding all the furniture with his father's soldering iron, just so the neighbors won't rustle it."

CCJ

This finishes our tale, as the cat said when he backed into the lawnmower.

Resume Work



87 BILLION TON-MILES OF HUSTLING CARGOES EVERY YEAR!

From carboys to crated machinery . . . fuel to fine furniture . . . the share of the nation's goods moved by motor freight grows every year. Competition requires stiff schedules . . . few breakdowns . . . plenty of power. Superior lubrication and sound maintenance methods are important.

Fleet Owners—coast to coast—count on Wolf's Head for both!

WOLF'S HEAD MOTOR OIL—100% PURE PENNSYLVANIA; PREMIUM GRADE—is refined three steps further than ordinary oil. It's richer, tougher—always free-flowing—resists heat better—and is free from impurities that cause sludge and undue engine wear.

WOLF'S HEAD HEAVY DUTY MOTOR OIL—100% PURE PENNSYLVANIA PREMIUM GRADE is refined from nature's finest crude.

It is skillfully fortified with scientifically selected additives to assure strong, tough film—excellent detergency—unexcelled dispersancy—maximum resistance to oxidation—superior stability.

WOLF'S HEAD LABORATORY CONTROL SERVICE PLAN—available to all fleet owners . . . large and small . . . at no cost—helps establish correct drain periods, sound maintenance practices, efficient operating schedules.

The Wolf's Head Plan—sound maintenance practices plus superior lubrication—reduces operating costs . . . increases the useful life of fleets. Ask your Wolf's Head Distributor for further information. Or write to . . .

Wolf's Head Oil Refining Company, Inc., Oil City, Pa., New York 10, N.Y.

WOLF'S HEAD

MOTOR OIL AND LUBES

100% Pure Pennsylvania
"Premium Grade"



Member, Penna. Grade
Crude Oil Association

Helms' SPECIALIST CREWS

Step up Service with Smaller Staff



One of Helms' 18-year old trucks

West Coast bakery fleet's 31-man staff was cut to 21 with a big boost in maintenance quality and efficiency by organizing crews to specialize in particular phases of service

THE ORGANIZATION of our shop personnel into specialized crews has proved highly successful. The outstanding feature of the new crew system is the high degree of coordination between the various crews, and the co-operation of crew members with each other and with members of other crews.

As a direct result of this organization, our shop personnel has been reduced from 31 men to 21 without any sacrifice in the quality of the work turned out. In fact, the 21 men, organized into crews, are now doing a better job than was done before by 31 men.

The backbone of the Helms fleet is 175 Twin Coaches, 40,000 Series, purchased in 1931. In 1934, 20 more were added and, in 1941, 1946, and 1947, 60 Divcos, UM Series, were purchased. The majority of the units in operation are, consequently, 18 years old—but they are all on a par in appearance and performance. Operators of door-to-door fleets usually are sticklers for appearance. The Helms fleet, we often have been told, has a reputation of being one of the most attractive in the Los Angeles area.

Each Helms coach is an elaborate, custom-made "store on wheels," with, we believe, lots of eye appeal. Each vehicle carries a wide variety of bakery products, and these are displayed in cabinets built into the body. These cabinets are expensive to maintain, and they add considerable permanent weight to the vehicles.

By R. H. Vandenberg

Superintendent of Maintenance,
Helms' Bakeries,
Los Angeles, Cal.



Five Basic Crews

THE 21 men in our shop are grouped into crews as follows: A General Fleet Maintenance Crew consisting of two motor men, two trouble-call men, a brake man and a general utility man; a Paint and Body Crew consisting of five men; a Cleaning Crew of four men; a Complaint Correction Crew of two men, with a subordinate Lubrication Crew, Tire Crew and an Electrical Crew of one man each. There is also a one-man Stock Room Crew.

THE GENERAL FLEET MAINTENANCE CREW works day shifts. When a vehicle requires a major overhaul, it is turned over to the leader of this crew. He and his partner pull the engine and replace it with a rebuilt one in two hours.

These men always are busy because, when they aren't changing engines, they are rebuilding one of the six spares

(TURN TO PAGE 50, PLEASE)

Helms' SPECIALIST CREWS

Continued from Page 49

Functions of Helms' Five Coordinated Crews

1. General Maintenance Crew

SIX MEN: Two Motor Men, Two Trouble-Call Men, Brake Man, General Utility Man

Crew works day shift, Top motor man is working supervisor.

When a vehicle requires a major overhaul, it is turned over to the leader of this crew. He and his partner pull the engine and replace it with a rebuilt one in two hours.

In the meantime, brake man works on brakes and general utility man tackles other chassis parts — clutch, differential, springs and/or whatever is assigned by supervisor.

Average vehicle overhaul is accomplished in one day.

Trouble-call men handle road calls in 1-ton utility truck well stocked with spare parts and tools or in 1½-ton wrecker. When not on road calls, they rebuild starters, generators, carburetors, etc.

on the floor. Ordinarily, a major overhaul job is accomplished in one day because of the practice of exchanging engines and other parts rather than repairing them on the spot.

When the rebuilding is completed, the engine is broken in and tested on an engine dynamometer. After the initial warm-up period, the engines are turned over to 1400 rpm for a seven-hour break-in period. The final tune-up is done when the engine is mounted in the coach.

The entire General Fleet Maintenance Crew is under the top motor man, to improve coordination of associated activities. The motor man knows, for instance, when brake work can best be done on the coach at hand without interfering with his work, and he supervises the general utility man for the same reason. This mechanic does chassis group work such as differentials, clutches, springs and axles. By coordinating his function with that of the brake man and the motor men, it is possible to get all the necessary work done in one day. This is essential, as there can never be more than six coaches out of service at any one time; and some must be on hand as replacements.

The general function of the two trouble-call men is to go out and start vehicles that have broken down on the

2. Paint and Body Crew

FIVE MEN: Cabinet repair men, fender and body men, and painters

General body maintenance, including display cabinets in the vehicles. Also handle painting plant equipment.

3. Cleaning Crew

FOUR MEN: Gassers, cleaners and general utility

Entire crew gasses vehicles. When this job is done, they break up as follows: Two handle washing and cleaning, one checks vehicles for unreported damage, the other handles advertising signs.

4. Complaint Correction Crew

FIVE MEN: Two Mechanics, Lubrication Mechanic, Tire Man, Electrician

According to shop duties, this crew is broken down into three crews under the supervision of the Complaint Correction Crew leader.

This crew works at night. The two mechanics handle all driver complaints and any other repairs found necessary. They also handle tune-ups.

Lube man is mechanic who rotates job with the two mechanics mentioned above.

Tire man handles tire stock, repair tubes and general tire maintenance.

Electrician handles repairs of electrical parts and batteries.

5. Stock Room Crew

ONE MAN: Handles all parts

One man can handle all Helms' stock now that inventory has been reduced from \$58,000 to \$36,000.

road. They have a 1-ton pick-up fully equipped to handle any normal road service call. It is stocked with spare parts that can be changed on the spot, such as generators, carburetors, etc. They also have a 1½-ton wrecker for more serious calls. When this unit goes out, it tows a replacement coach; as the first requirement is that the delivery schedules be met.

When the trouble-call men are in the shop waiting for calls, they keep busy repairing and rebuilding generators, starters, carburetors, etc., ready for reuse. They do this work as it ties in very well with their experience as outside trouble shooters.

Throughout the system there is always something for each man to do all the time. There are no idle periods.

Since this program has gone into effect, road calls have been reduced about 30 per cent, by locating trouble in the shop rather than waiting for it to develop. This has enabled the trouble-call men to do more work in the shop, and help make it possible to do the work with fewer men.

THE PAINT AND BODY CREW consists of five men, including the crew leader. It is responsible for maintenance of the bodies inside and out; including repairing the cabinets, fender and body work, preparing, painting

and applying the decals. This crew is the same size as before but, since the reorganization, it has taken on jobs of painting plant equipment other than the coaches rather than lay off any of the men.

THE CLEANING CREW comes on at 4:30 in the afternoon, and consists of four men including the crew leader. They gas the coaches as they come in and record the mileage and amount of gas of each coach. When this task is completed, the crew breaks up, and two of them handle the washing and cleaning.

Another man checks all the vehicles for unreported damage, and checks to see if ignition switches have been left on, etc. His partner is responsible for all the cardboard advertising signs on the bodies. He replaces damaged signs, and puts in the new ones issued from time to time. These men also handle minor repairs, like tightening mirrors, etc., when their other duties are completed. Radiators are filled twice a week, using a tank wagon. Each of the men has his specific duties, and they all have enough to do to keep busy during their shift.

THE COMPLAINT CORRECTION CREW consists of two crack mechanics, one of them the crew leader. This crew does its work at night so as not to interfere with the operation of the fleet. Their tools are carried on rollers so that as much as possible of their work is done in the parking area.

They correct conditions reported to them by the drivers and by other sources that will be explained. If the trouble lies in some part like a generator, starter, carburetor, etc., they pull the faulty part and replace it with a new or rebuilt one instead of taking time to repair the part itself. These parts are then repaired or overhauled by the two trouble-call men, as explained.

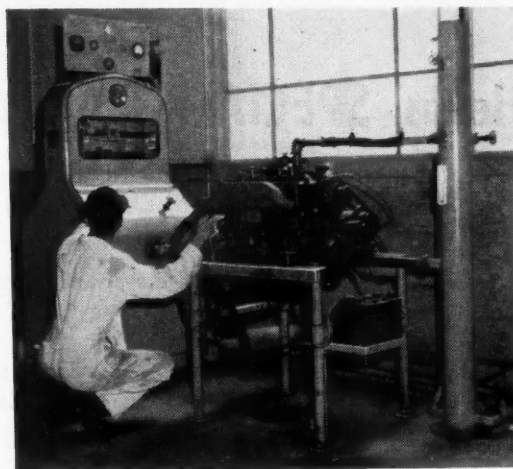
When the two complaint correction men get all their written orders caught up, they work through the fleet checking carburetors, timing adjustments and doing general tune-up work. As in the case of the other crews, these men always have work ahead of them and are never idle.

THE LUBRICATION CREW actually is just one man, but he is one of the most important in the entire setup. He really is a third complaint correction man, as the men in this crew take turns at the greasing.

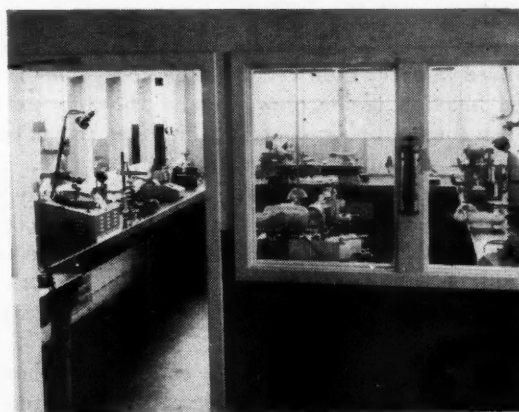
We believe that lubrication is one of the most important jobs in the shop, and we want it done by a mechanic. In the first place, the mechanic is of a higher caliber and, therefore, able to do a better job. In the second place, he is qualified to examine the coaches for needed work along with the greasing. All men doing complaint correction work have a turn at the greasing detail so that, over a period of time, the entire fleet is examined by all three mechanics.

The tire man is a crew in himself, but he is under the supervision of the complaint correction crew leader. He is in charge of the tires for the entire fleet, decides which

(TURN TO PAGE 52, PLEASE)

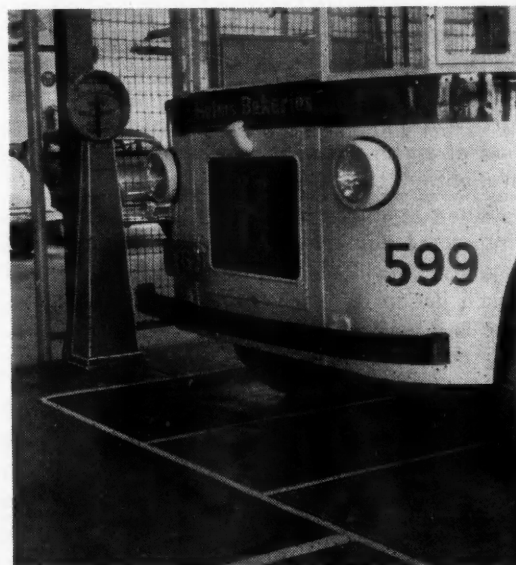


After rebuilding, all engines are tested and broken-in on a dynamometer in the Helms garage. Exhaust fumes are expelled through the side of building. Note water tower at right



Exact work, such as bearing sizing, pin fitting, and instrument testing, is handled in this clean, enclosed "Precision Room." Electrical and carburetor jobs are handled here

When the mechanic brings a vehicle in for a lubrication job, he first stops here to test wheel alignment. Lubrication is handled only by the mechanics, who inspect while greasing



Helms' SPECIALIST CREWS

Continued from Page 51

tires shall be recapped, which discarded, etc. He also makes minor repairs, such as patching tubes, and is in charge of the stock of new tires.

The electrician serves in the same capacity regarding batteries. He also handles all repairs of an electrical nature, such as wiring, etc.

The crew leaders are paid about 10 per cent higher than the men under them, and they take full responsibility of their phase of the operation. They use their own initiative in planning and performing their work.

Flexibility with Responsibility

THE idea back of this setup was to get flexibility with responsibility. The superintendent should not be involved in every little detail on the floor. This is properly the function of the crew leader. The only exception is when some problem confronts him that he can't handle—but this should be the exception, not the rule.

We work with fewer men now than formerly, but they all are of high quality and are capable of making their own decisions. We have kept away from the idea of a rigid, cut-and-dried system for the men to work by. We have men of high ability and we want to exploit this ability.

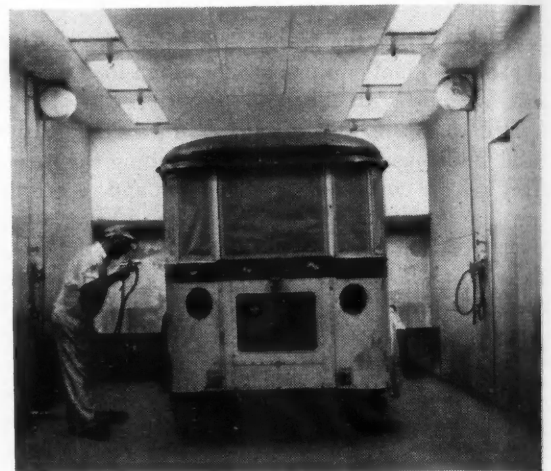
An important phase of the coordination between the crews is brought out in the discovering and reporting of needed work on the vehicles. The cleaning crew, for example, might reasonably be expected to confine itself to just cleaning. Instead, these men are trained and educated to observe details needing correction as they go about their work, and report them to the complaint correction crew, to the tire man or to the electrician.

This matter of finding needed work is also brought out in the case of the lubrication mechanic. He brings the coaches from the parking area to the rack. This gives him an opportunity for road testing and observing engine and brake performance. Before putting it on the rack, he runs it over the wheel alignment tester so that necessary adjustments can be made while the truck is in the air. While he is greasing, he makes a further examination of springs, muffler, wiring, etc. This work is done at night.

Minor repairs are turned over to the complaint correction crew for immediate attention. If the condition of the coach is considered serious, it is deadlined and a spare coach put in its place; otherwise, it is put back on the line and the work scheduled for the future.

High Spirit of Cooperation

THE largest part of the needed work is reported by the lube man and by the drivers, but every man in the shop is trained to cooperate with the rest by observing and reporting needed work to the right department. This spirit of cooperation permeates the entire operation and



Helms has excellent facilities for appearance maintenance. This painting booth, for example, has good lighting, water curtain exhaust, and ample room to work around vehicle with comfort

is the most outstanding part of the system. That it does exist is no accident. We give more care and attention to this one factor than to any other phase of his program.

The spirit of friendly cooperation must start from the top, and relationships with the men scrupulously fair, entirely free from sarcasm, and always ready to give credit when credit is due.

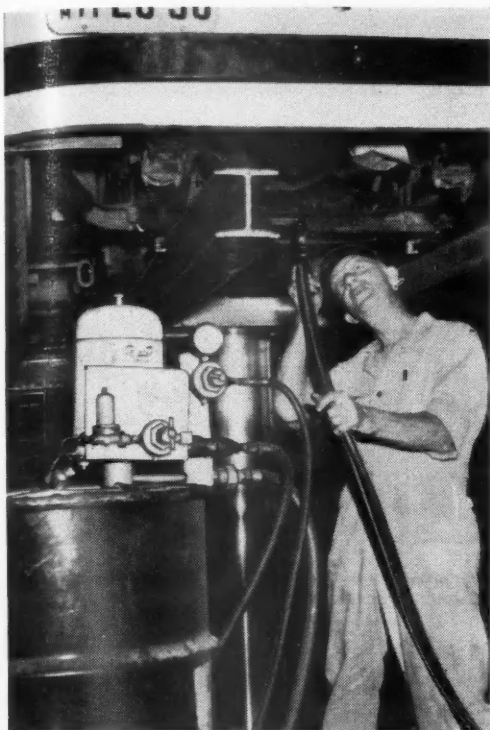
A man doesn't mind being reprimanded if he knows he is wrong; it's the way it's done that makes the difference. There is no tension among our men, because they know they will always get a square deal.

The building up of this spirit of cooperation among the men, so that they would work together as friends, ties in very closely with the 10 who were eliminated after the reorganization. The men to be eliminated were selected on the basis of their compatibility with the rest, not on their ability as workmen.

There were six men in particular who seemed to be causing much dissension. Comments made by the other men backed up this decision, and these men were discharged. Rather than there being any bad feelings, the remaining men were glad to see them go; especially since they had been consulted before the action was taken.

This left four to be disposed of. The men selected to go were "good guys," and not trouble makers, so they were transferred to other departments in the main plant. They were eliminated on the basis of not being suited to the work.

From the first, we talked cooperation more than results or efficiency, or anything else. Most of the men were



To solve mechanical problems caused by frequent stops and slow driving on their routes, Helms changed gear ratios and undercoated oil pans to raise lubricant's operating temperature

highly qualified mechanics, the best obtainable. There wasn't much we could do to improve their knowledge about their work, but we did believe that there was a lot we could do in the way of increasing their willingness to work together for the good of all.

There are many little ways that men can work in harmony to get work done faster and better, and there also are many ways they can "foul each other up," if they feel so inclined. By cooperating, it is possible for several crews to work together on one coach, and get it out quickly, rather than each crew pulling in a different direction.

In line with this program of increasing efficiency by building up a feeling of friendly cooperation, I hold a 10-minute meeting with crew leaders every Friday night, at a time when the shifts overlap. Every man makes a report on the progress of his crew for the past week, and makes suggestions as to how he thinks closer cooperation in some phase of the work would produce better results. Actually, these meetings don't produce any results that couldn't be developed without a formal meeting, but they do dramatize the fact that the organization is striving for further cooperation.

Example of Crew Coordination

A RECENT, rather spectacular example of how Helms' coordination of activities works in practice was demonstrated in the case of a coach that burned. The

(TURN TO PAGE 158, PLEASE)

Helms' shop cost, maintenance record and control system is very simple. Basically, the system consists of shop forms, shown above, plus a master Index Sheet for each vehicle, which is a greatly condensed record of work done and when.

1. This is a daily work report by the Paint and Body crew. 2. Tire crew production is reported in detail on this form. 3. This form is filled out by the trouble-call men, and serves, not only as a production record, but summary of road call failure causes. 4. Electrical crew reports daily production on this form. 5. The two motor men of the general maintenance crew report their work on this form. 6. The gassing and washing crew use this form for their total production. A separate gas sheet reports fuel supplies to each vehicle. 7. This form reports all brake work done daily.

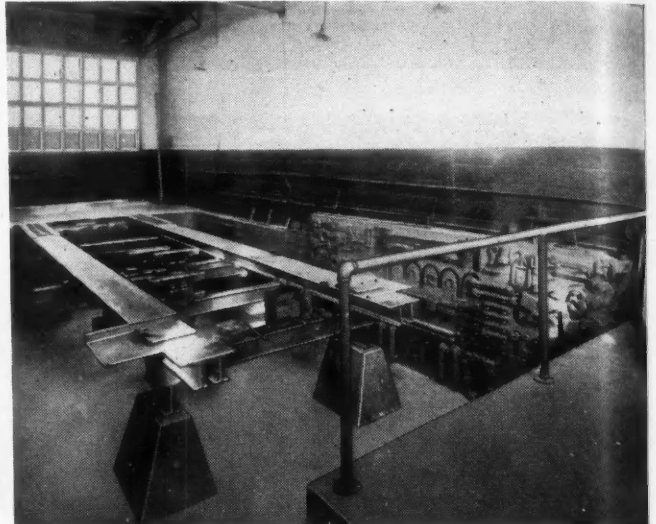
8. The lubrication mechanics of the complaint correction crew reports all repairs and adjustments made, whether requested by driver or not.

9. This form is made out by the lubrication mechanic. It recommends repairs or adjustments not possible within the nightly schedules.

All forms are filed in ring binders according to dates, and are easily located.



Frame alignment and front-end machine is located in its own pit adjacent to body shop. Note accessible tool storage



Northside service area is equipped with work benches and portable equipment. Overhead crane runs length of shops

CAROLINA COACH

"Keeps 'em Standard"

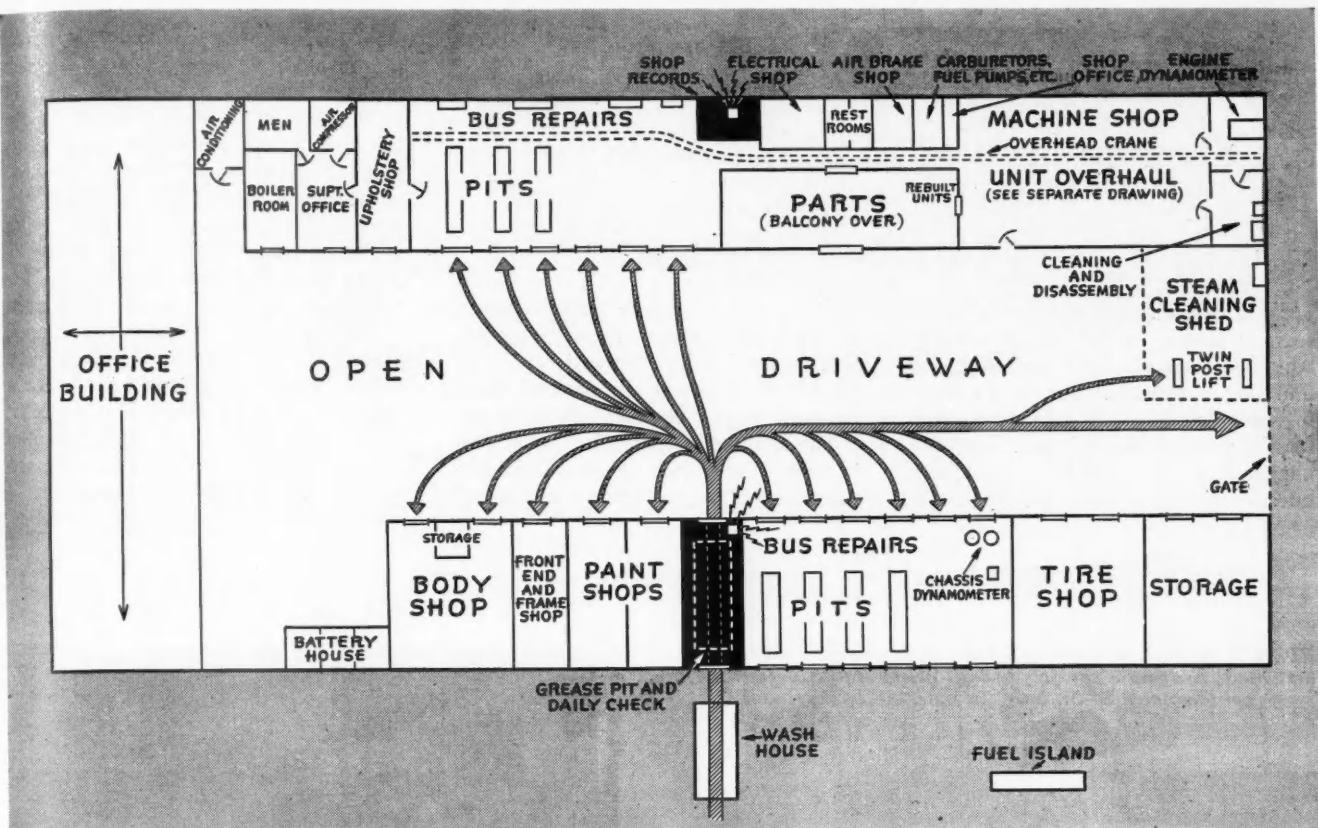
Carolina Coach Co., with headquarters in Raleigh, N. C., is one of several operating units of the National Trailways Bus System. Its 2000 route miles blanket the eastern section of North Carolina from Charlotte on the west to Wilmington, N. C., on the east and extends as far north as Norfolk and Richmond, Va., connecting at nearly all extreme terminals with other Trailway routes. It operates a total of 231 intercity buses, approximately 130 of which are based at Raleigh, the remaining number being assigned to six outlying terminals each equipped with its own small shop but all dependent on Raleigh, for major overhauls and unit replacements. Average mileage is 1.5 million per month

Charge to the account of		WESTERN UNION		1956
TELEPHONE	ORDINARY	<div style="display: flex; justify-content: space-between;"> <div> <p>A. H. WILLIAMS PRESIDENT</p> <p>NEWCOMB CARLTON CHAIRMAN OF THE BOARD</p> <p>J. C. WILLEVER FIRST VICE-PRESIDENT</p> </div> <div> <p>CHECK</p> <p>ACCOUNTING INFORMATION</p> <p>TIME FILED</p> </div> </div>		
TELETYPE	URGENT			
LETTER	DATE			
WIRE	DEFERRED			
WIRE	WIRE	<p>Send the following telegram, subject to the terms on back hereof, which are hereby agreed to</p> <p>GENERAL SHOP ORDER — PREVENTIVE MAINTENANCE</p> <p>TO ATTAIN THE DESIRED OPERATING EFFICIENCY AND DEPENDABILITY FOR OUR BUSES, WE WILL HAVE TO STICK TO MANUFACTURERS STANDARD. DO NOT MAKE CHANGES IN DESIGN. DO NOT LEAVE ANYTHING OFF OR LOOSE. TO PREVENT ROAD FAILURES WE MUST FIND THEM BEFORE THEY FAIL.</p> <p><i>J. W. Cole</i> J. W. COLE SUPERINTENDENT OF EQUIPMENT</p> <p>When you KNOW your JOB thoroughly, it will be easy.</p>		

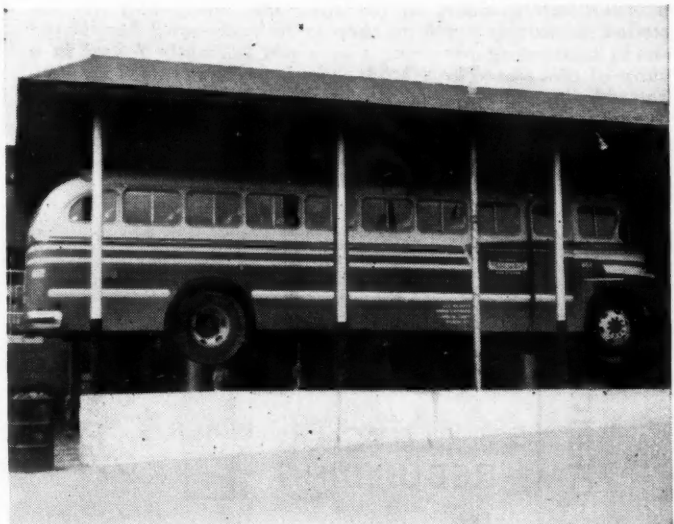
A typical periodic notice sent to the various departments as a reminder to stick to manufacturer's standards

“KEEP 'EM STANDARD” is the rather unusual motto which, more than anything else, governs our maintenance activities. By that, we mean keeping our buses as nearly identical to original factory specifications as possible.

I know there are many bus and truck operators that disagree with this philosophy. That's what makes life interesting. Bus in an operation like ours, where vehicles are frequently serviced by branch shops, we be-



ABOVE. This is the layout of two buildings and a central open driveway area at Carolina Coach Co.'s Raleigh shops. Special attention is invited to the two areas shown in black which are connected by an intercommunication system. Every bus in the fleet every day passes through the automatic wash house and over the grease and inspection pit. There, driver reports and mechanic inspections are checked by "intercom" with the shop records in the office across the way. By comparing current reports with permanent records, shop foreman then directs disposition of bus to any area by means of routes indicated by arrows. For details of machine shop and unit overhaul see separate drawing. There is a large parking area on the south side below fuel island



RIGHT. Twin-post lift is used primarily for steam cleaning the underbody prior to major service operations. It is mounted in the shed devoted to all types of cleaning

lieve there is nothing that makes for better efficiency than to have every part installed exactly as it came from the factory.

Standardization Simplifies Maintenance

WHEN a mechanic at our Richmond shop, for instances, lifts the engine compartment door of a given bus model, he knows exactly what he

is going to find behind it. There won't be any fancy homemade dodads or adaptations. When it comes time to service the batteries, the mechanic does not have to start off on a hunting expedition. He knows he will find them exactly where the man-

By J. W. Cole
Superintendent of Equipment
Carolina Coach Co., Raleigh, N. C.

ufacturer put them—and probably for very good reasons. And so it goes right on through the bus. Thus, standardization simplifies maintenance.

Of course, there are exceptions to every rule. We use oversized pistons and undersized crankshafts, of course. But each engine so modified is carefully marked on the permanent record (TURN TO PAGE 56, PLEASE)

... "Keeps 'em Standard" Continued from Page 55

ords, so that when the engine rebuilder tears it down, he too, knows exactly what he is going to find. Also, when we find that a manufacturer, in an effort to reduce weight, has taken too much tensile strength out of, say, a spring hanger cross assembly, we do not hesitate to reinforce it when the job has to

be repaired. But once such necessity is noted, we do them all the same way. So that by the time the entire cycle of repairs are made, all are back to standard—in this case our own new standard.

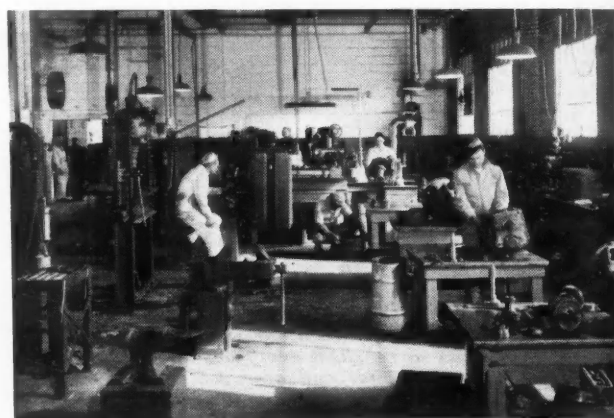
The standardization policy works out in other ways, too; maintenance routines, for example. Once we find the

most efficient way to schedule a given job through a given department, for instance, we stick to that same method until a better way comes along. Those last four words are mighty important, though, for we never want to give the impression that we stifle initiative. On the contrary, we are always striving for it to a maximum degree.

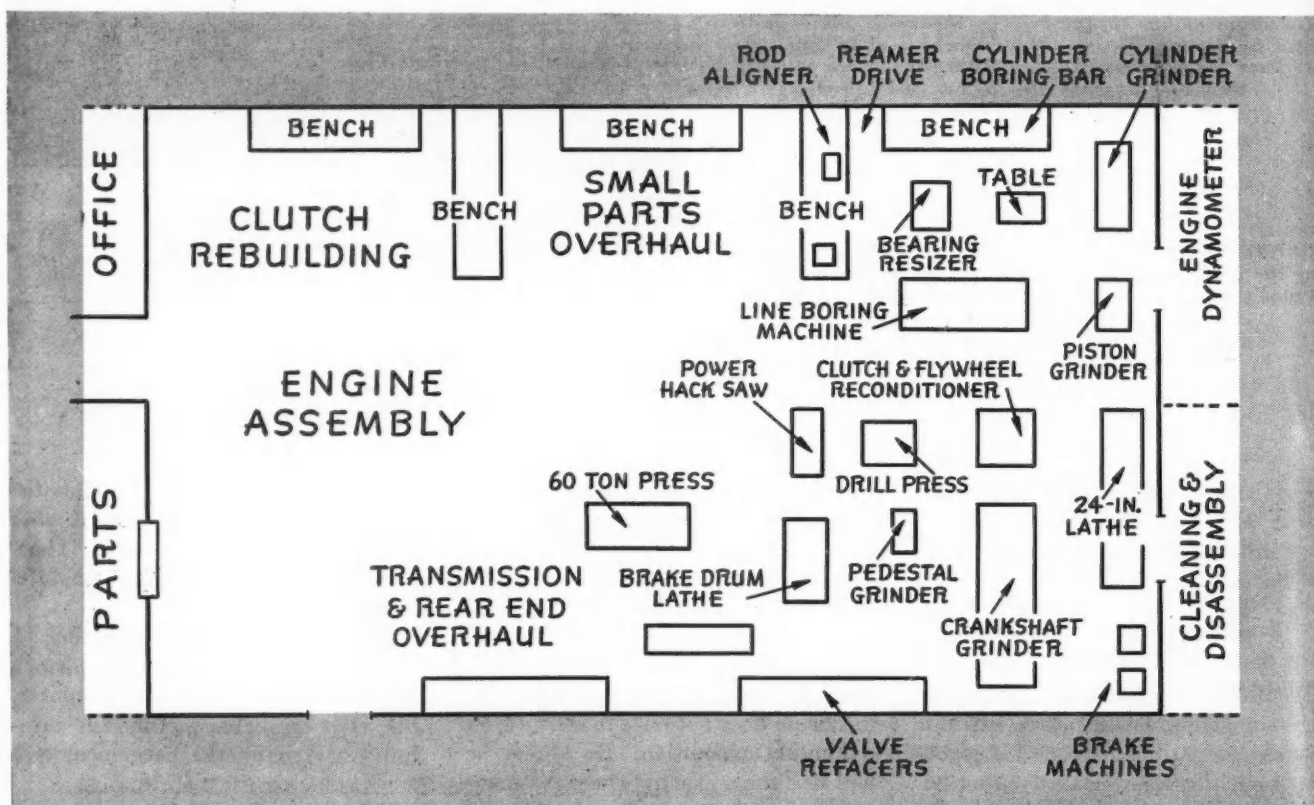
The more scattered an operation becomes, the more important is the need for this standardization of procedures, quality of workmanship, and records. When an outlying garage calls in for a generator or for a Model B of an XYZ coach, both the branch shop foreman and the headquarter's records depart-

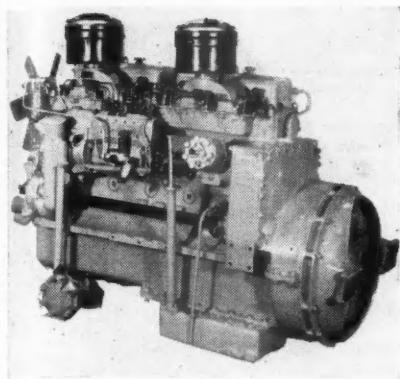
(TURN TO PAGE 108, PLEASE)

RIGHT. A section of the machine shop showing 60-ton air-activated hydraulic press, brake drum lathe, crankshaft grinder, and 24-in. lathe in extreme background

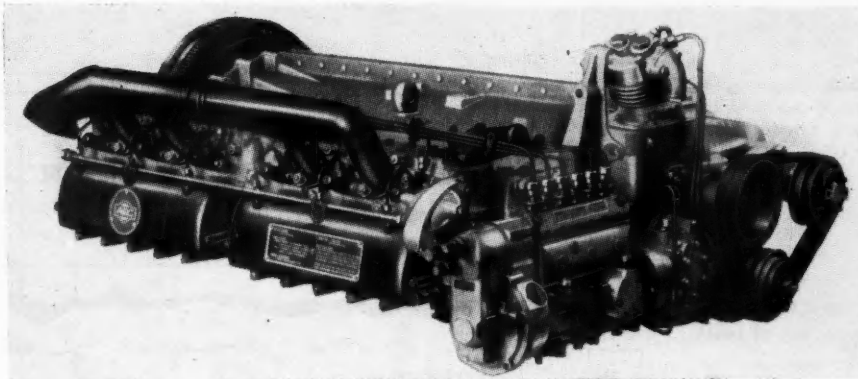


BELOW. Layout of machine shop and unit overhaul section shows location of all major equipment which includes even a crankshaft grinder. At the time this equipment was installed no outside machine shop in Raleigh could handle the work, accounting for some pieces not normally found in a shop of this size. The 60-ton press is hydraulic with air activation. But each piece has paid off. Note that engine dynamometer and cleaning and disassembly operations are handled in separate rooms for reasons of noise and cleanliness respectively

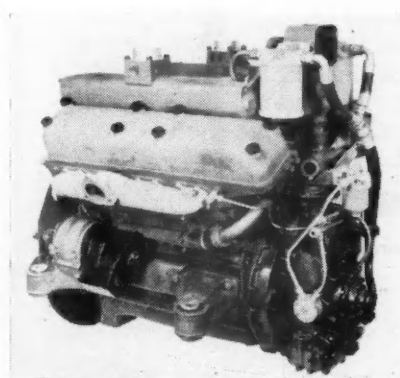




The Daimler 650 diesel now available for heavy-duty operation in the U. S.



The A.E.C. 690 cu. in. pancake diesel develops 150 hp at 1800 rpm



The Rover Meteorite V-8 diesel develops 320 hp at 2400 rpm. Weight is just 1500 lb

American Fleetmen Eye British Diesels

The Rover 8-cyl V-8; A.E.C. 589 and 690 cu in. models; and other diesel engines and trucks highlighted British Auto Show in N.Y.

VTRUCK and bus operators who visited the recent British Automobile (and Bicycle) Show at Grand Central Palace, New York, found several items of special interest. In common with Mr. Average John Q. American, they eyed the Rolls Royces, the Daimlers, the Jaguars and nearly a hundred cars of lesser make, but they concentrated on several exhibits of less glamorous proportions.

They considered the possibilities of the now familiar Thames Ford-built panel delivery, and the light weight Austin trucks, examined the giant Leyland oil field six-wheeler, and the Leyland and Whitson buses on exhibit. Then they dug in to study the possibilities of the various make diesel engines on exhibit.

Probably the brightest spot-light of interest played on the Rover Meteorite, a brand new 60 deg, 8-cyl diesel of spectacular proportions and with an equally spectacular power—weight ratio, tipping the scale, on which it

was exhibited, at just under 1500 lb, the Meteorite develops 320 hp at 2400 rpm. According to our book, that's one horsepower for every 4.69 lb, a feat believed unmatched by any other diesel engine. Among its vital statistics are these noteworthy items: 5.4-in. bore, 6-in. stroke for a total displacement of 1099 cu in.; 16.5 to 1 compression ratio, a maximum torque of 820 lb-ft, at 1200 rpm; all aluminum-alloy crankcase, block and heads; forged steel wet-type cylinder liners chrome-plated at the top of the core; overhead cam shafts operating two inlet and one exhaust valves per cylinder; and a standard British C.A.V. fuel pump mounted within the 60 deg V and easily removable for service operations. It is this engine that powers the "Mighty Antar" described on page 77 of this issue. There are also three other engines

in this family, all of almost identical characteristics. One is the 12-cyl version of the same engine. The other two are gasoline models of similar dimensions.

While still at the Rover exhibit, visitors also gave a double look at what first appeared to be a slightly overgrown Jeep, but turned out to be the "Land-Rover." Admittedly copied from basic American Jeep design, the Land-Rover is a little wider, longer and heavier than the American version and said to be a good bit tougher. Well in advance of the new Willys F-head engine (announced last month in CCJ, April, page 158) the vehicle is fitted with a 4-cyl Rover F-head engine. Like the jeep it is equipped with both main and auxiliary transmissions, four-wheel drive with lock-out for the front axle. But

(TURN TO PAGE 128, PLEASE)

Vehicle Mileage and Cost Record

Month of _____ 19__

Date	Driver	Intercity Mileage				Pickup and Delivery and Local Service		Motor Fuel		Oil		Repairs and Servicing	Tires and Tubes
		Ill.	Mo.	Kans.	Colo.	Mileage	Hours	Gal.	Amt.	Qts.	Amt.		
1													
2													
3													
29													
30													
31													
Totals													

Per Mile _____

Unit No.	TRUCK	TRACTOR	Tractor
Assigned Service (Intercity or FWD)			
Total Intercity Mileage			
Total Pickup and Delivery Mileage			
Total All Mileage Operated			

A detailed fleet cost analysis is possible using this form

Simplified System Supplies Functional Costs

V ELEMENTS of fleet maintenance and operation costs have steadily increased during the past year without the benefit of corresponding increases in revenues. For example, during the latter part of 1949 earnings of Class I intercity motor carriers of general freight increased approximately 9.5 per cent over the same period in the previous year. On the other hand, expenses gained faster than revenues, and analysis indicates an increase of 11.5 per cent over previous year's period.

Increase in revenues reflected merchandise stock replacements which were allowed to decline during the first part of 1949; due, no doubt, to fear of the possibility of a continued

business recession. Direct wage rate increases and the effect of increased wages, included in the cost of material, supplies and services purchased, account for higher operation costs.

Functional Cost Data Needed

CONSEQUENTLY, more careful consideration must now be given to the individual functional costs of fleet owner operations.

Maintenance and operation costs represent enormous expenditures to the fleet owner, and it is here that expenses should be carefully checked. Costs per mile for gasoline or diesel fuel, motor oil, repairs, tires and tubes; the extent of the use of equipment, and actual mileages operated,

including pickup and delivery mileages, are but a few of the many needed statistics available to management through the proper use of everyday accounting records.

Not enough has been accomplished toward the compilation of accurate statistics to provide the means for necessary cost control.

There is a lack of formulated knowledge of the science of interpreting statistics in the fleet owner field. Much needs to be done to provide more facts of past performance in order to assume proper direction of future managerial procedure.

Many statistics are of little value because of the use of estimates or inaccurate procedure. If the process of

Detailed comparison of per-mile costs, such as this of three-mid-West fleets, is possible with form on opposite page

	Costs per Mile in Cents		
	Carrier A	Carrier B	Carrier C
Revenue.....	46.51	42.30	48.60
Total Expense.....	45.93	41.20	44.02
Repairs to Line Haul Equipment.....	5.29	3.80	3.63
Tires and Tubes—Line Haul Equipment...	1.58	1.20	1.57
Total Equipment Maintenance Expense....	9.73	5.60	6.11
Wages—Intercity Drivers and Helpers.....	6.12	5.40	6.21
Fuel—Line Haul Equipment.....	2.91	2.50	2.56
Oil—Line Haul Equipment.....	.14	.20	.28
Total Terminal Expense.....	9.95	7.10	10.65
P. L. and P. D. Insurance Expense.....	.94	.80	.82
Cargo Loss and Damage Expense.....	1.28	.50	.96
Administrative and General Expense.....	1.81	2.00	2.08
Depreciation—Line Haul Equipment.....	1.60	.60	1.75
Fuel and Oil Taxes, Vehicle License and Registration Fees—Line Haul Equipment.	2.30	1.70	2.31

One simple form provides record of principal vehicle expense items for for-hire carriers and permits easy operation and cost analysis

By John Essex

obtaining and applying statistics could be simplified, a greater use of the data would be more widely adopted by fleet owners.

Increase in cost elements is the signal for action—fast action, through judicious corrective measures, based on comparisons of costs of performing certain phases of the operation. Such costs may be checked with previous periods or with similar operational functions of other fleets.

Many fleet owners feel that profits do not justify the installation and maintenance of tabulating or accounting machines to obtain statistical data, or that the statistical requirements do not warrant the use of mechanical equipment. Thus, it be-

comes necessary to improvise the means for obtaining data (costs, particularly), without overburdening the fleet owner with incomprehensible formulas and extra clerical forces.

Segregating Interstate Costs

IN SOME cases, revenues and expenses are prorated to apply to various states on the basis of actual intrastate mileage operations. Such prorations are sometimes used in the preparation of state income tax returns.

State mileages are also used to some extent in the allocation of values for tax assessment purposes.

Due to the dual nature of traffic handled in the same vehicle (inter-

state and intrastate), it is expensive and, at times, impractical to segregate interstate revenues between the various states in which operations are conducted. It is almost impossible, without great cost, to allocate expenses on a state basis. Consequently, it becomes necessary to make the allocation on what is considered to be a more equitable basis—actual intercity vehicle mileage operations within each state. This may be accomplished by the installation of individual vehicle performance record forms.

In some instances, mileages are recorded on an estimated basis and, of course, such statistics become valueless, and even misleading, for the determination of mileage costs. This applies particularly to tire and tube costs—a factor involving the expenditure of large sums for upkeep and replacements. Comparison of costs with those of other fleet owners is difficult unless accurate mileages are obtained.

Each state has its own peculiarities of highway conditions—concrete, asphalt, gravel, dirt, or other types; hills and curves—all of which have varying wear and tear effects on the mechanical parts of equipment, consumption of motor fuel and oil, and especially on tires and tubes. For example, a comparison of tire mileage costs on a vehicle assigned to one state in which operations are conducted over a gravel road would not be favorable to costs on a vehicle operated over concrete highways in another state.

State Mileage Data Vital

IT IS, obviously, vitally important to know the actual mileage operated within each state by each vehicle, in order to take into consideration the varying factors which are favorable or detrimental to economical operations.

Movement of a vehicle on one trip may involve operations in several states, and it requires the use of mile-
(TURN TO PAGE 172, PLEASE)

Shop hints from

\$25 FOR THE BEST HINT PUBLISHED
EACH MONTH . . .

\$5 FOR ALL HINTS
PUBLISHED EACH MONTH

\$25 Hint of the Month ★

One-Man Towing Bar

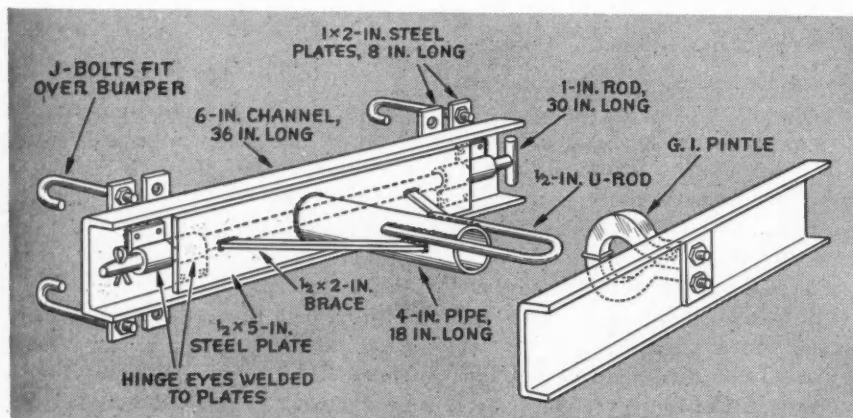
by Joel L. Crupper
Crupper Transport Co.
Hutchinson, Kan.

Here is a handy tow bar which will save a lot of time in pulling in disabled vehicles. It can be made of scrap with little time and expense involved.

The main cross bar is a 36-in. piece of 6-in. channel iron to which are welded four pieces of strap iron drilled to take J-bolts as shown. These bolts are fitted over the bumper of the disabled truck, holding the channel iron firmly against the vehicle bumper. The articulating section of the tow bar is made from a piece of $\frac{1}{2}$ x 5-in. steel plate approximately 30 in. long. This is held to the channel through hinge

eyes which are welded to both pieces. A 1-in. rod 30 in. long is threaded through the hinge eyes to provide vertical movement between the two vehicles. A 4-in. gas pipe 18 in. long is welded to the center point of the steel plate and braced with strap iron against lateral movement. To the end of this piece, a U-rod of $\frac{1}{2}$ -in. rolled stock is welded, providing an eye for the pintle.

As standard procedure we bolt G. I. pintles to the back of all trailers so that they can be used as towing vehicles when required. Thus the trailer or a tractor, hooked onto the vehicle can pull it safely and securely over any road. With this arrangement one man can go out and pick up a "dead one" in jig time.



1. Piston Vise

by Geo. F. Burnley
Oakland, Cal.

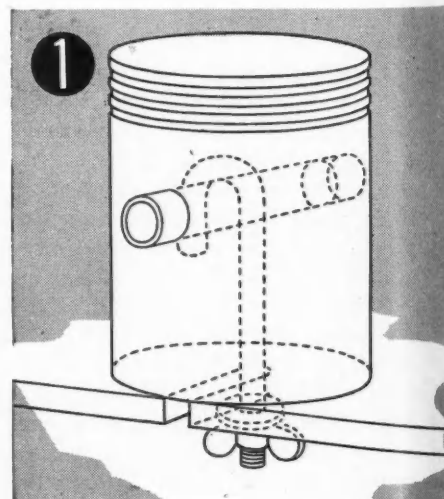
In the repair shop the mechanic is often faced with the problem of holding a piston on the bench while installing a set of rings. Due to the shape as well as the delicacy of the operation, it is not practical to hold it in a regular vise, while with a V-shaped fixture the lower ring is blocked.

We bore a $\frac{1}{2}$ -in. hole in the edge of the workbench, hook a J-bolt over the pin inside the piston and pull the nut down snugly. With a wing nut this operation is quick and simple.

2. Lining Modification

by Walter H. Bowart
General Baking Co.
Enid, Okla.

We have trouble with dirt entering the brake drum and cutting the lin-



FLEET SHOPS

ing out in low mileages. Much of this trouble has been eliminated by the following modification of the lining.

The drawing will show how we cut the toe of the lining on the forward shoes and the heel of the reverse shoes at an angle, drilling an extra hole near the edge and setting in another rivet. This angle permits dirt to be thrown to the side due to centrifugal force. Lining area is reduced very little with this method.

3. High Speed Drill Tip

by R. Courtney Burdick
King Motor Co.
Crockett, Tex.

It is hard to make the chuck hold on $\frac{1}{4}$ -in. electric drills when using high speed drills below $\frac{1}{8}$ in. Here is how it can be held firmly.

Rough up the drill shank on an emery wheel and slip a piece of cop-

per tubing over it. Crimp this sleeve to the drill. The chuck will tighten down on this copper piece and hold it as long as necessary.

This of course is offered only as an expedient. For precision work a drill with smaller chuck should be used.

4. Trailer Mover

by W. J. Anderson
Blackfoot, Idaho

The problem of moving semis around the shop when there is no prime mover available has been solved in our shop.

We merely place a spare tire mounted on a disc wheel on either a flat bed or a bare chassis and lower the trailer king pin into the stud ring hole. The weight of the trailer gives the tire sufficient friction to hold it in place for normal switching needs.

5. Soldering Iron Stand

by Harry J. Miller
Philadelphia, Pa.

Empty solder spools or discarded film spools make good stands for your electric soldering iron when bent as shown. They are light, easily made, and expendable.

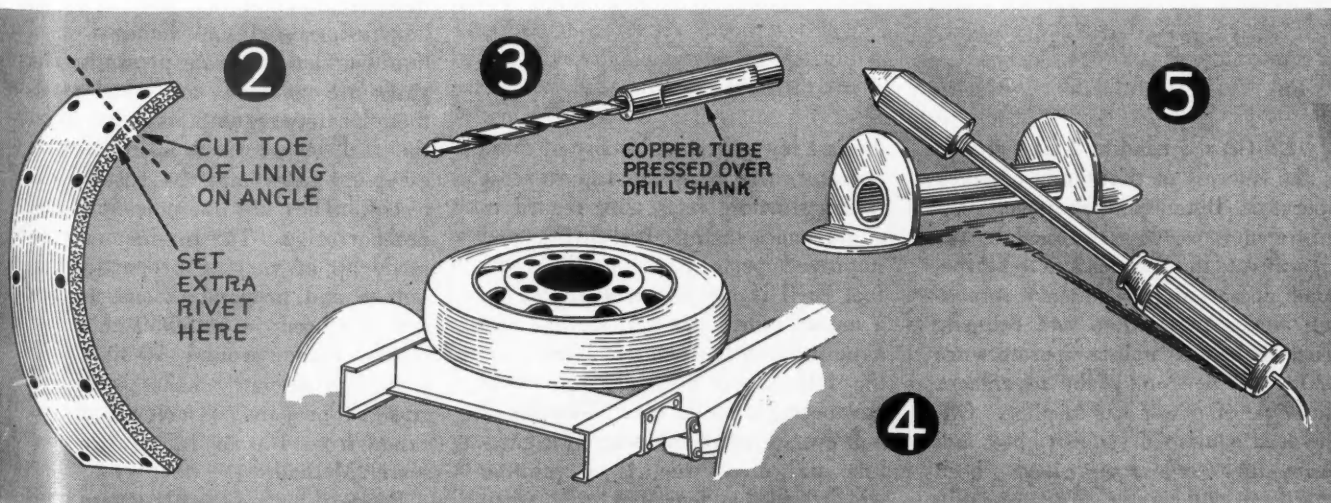
6. Stoplight Switch Change

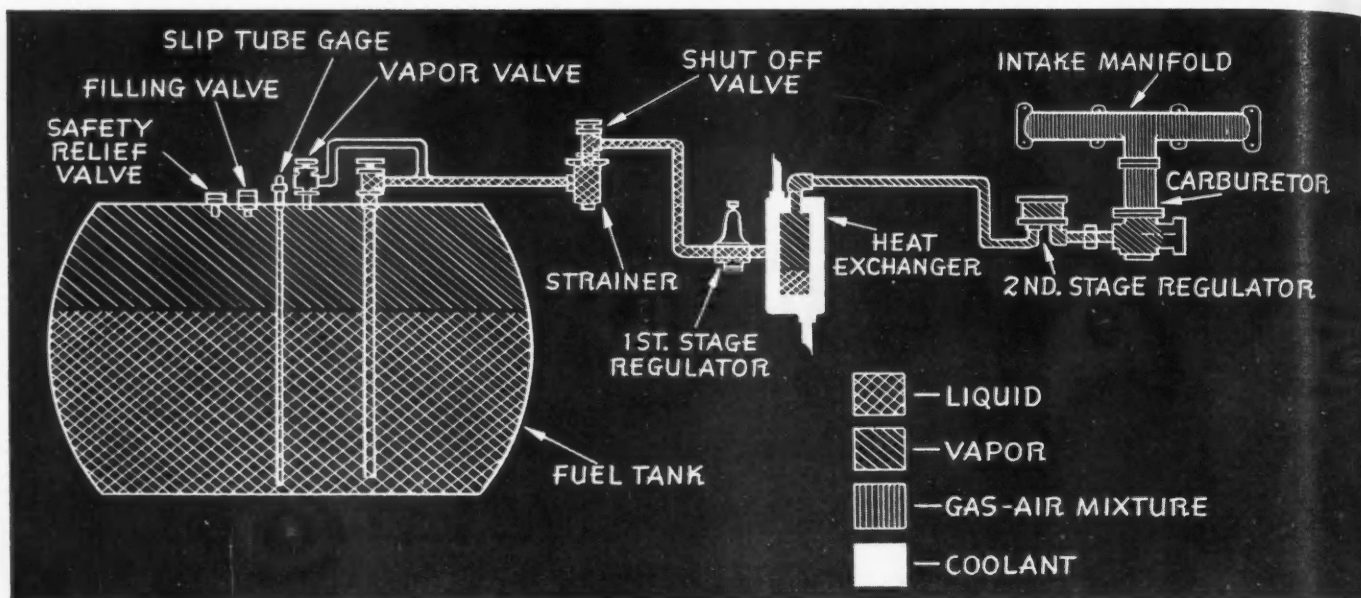
by George Hendrix
Berwick Transporters Inc.
York, Pa.

When we have stoplight trouble on the Autocar tractors we find that the stoplight switch located on top of the air tank and fastened by two bolts to the side of the frame is usually covered with grease thrown up from the front universal joint which makes it a messy job to check and replace if necessary.

When it is found that the old switch has to be replaced, we locate it on the service line back of the cab, where it is always easy to work at the next time there is trouble with the stoplight system.

The air lines from the foot and hand valves are disconnected at the shut off valve and a $\frac{3}{8}$ in. T is installed in the system. The wires are extended for the old switch to the new position of the switch. The old switch is removed and a pipe plug is installed in its place.





Schematic diagram showing how LP gas is stored under pressure, fed through the system and passed through the heat exchanger, pressure regulators and mixer into the cold intake manifold. Legend shows liquid, gas and mixture

LP GAS Gets the

LP gas operation offers up to 20% more fuel economy, twice the mileage between overhauls, five times the mileage between oil changes — over gasoline engines. The fuel is in adequate supply, but is not available in all sections

▼ LP GAS is heading East—and so is the interest of thousands of truck operators. Butane and propane, heretofore more or less confined to the area west of the Rockies and to off-the-road operation, is suddenly spreading across the nation, and refiners, truck makers as well as operators are taking another look at the advantages this type of power has to offer. Off-the-road equipment, transit buses and heavy-duty transports have been equipped with butane-propane within

the last few years, and many of these operators are ready to report some rather startling facts with regard to maintenance savings, fuel savings and improved performance. While the fuel itself is not as yet available on a nation-wide basis and storage and handling problems still face the user, the future will certainly see rapid advancement in its use. Whether it will ever directly compete with gasoline and diesel fuel is a question which will be answered only when

experience proves out the benefits as extolled by manufacturers and operators alike.

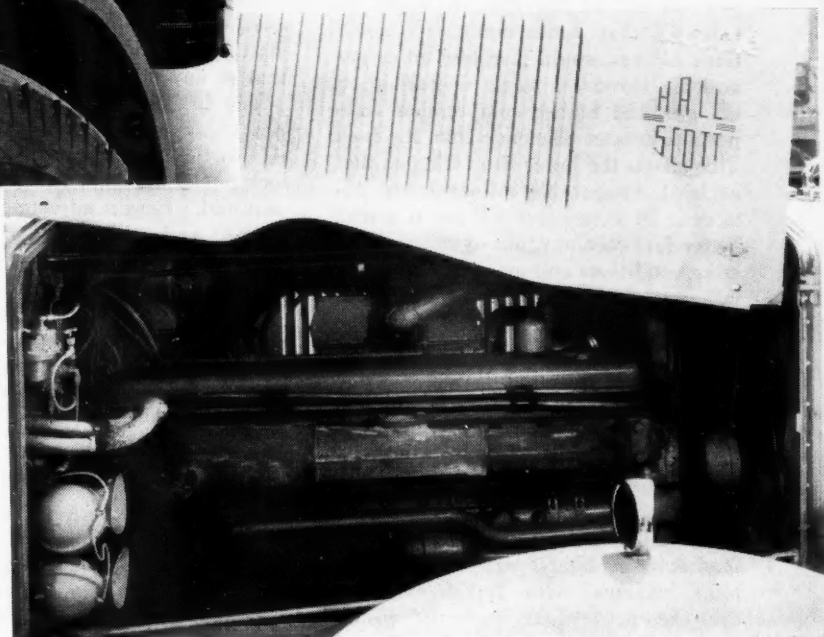
What the Gas Is

BUTANE AND propane are hydrocarbons obtained from two sources—natural gas and the processing of gasoline and other petroleum products. These fuels are in a gaseous state at normal temperatures and atmospheric pressure, but may be liquefied, stored and handled as a liquid under moderate pressure. The gases are colorless and odorless although safety regulations require that the fuel be odorized in order that escaping gases may be readily detected. They are non-poisonous and non-corrosive. The product may be made up of varying proportions of butane and propane. Some brands are produced in a 50-50 mixture; others range around 70-30, while some producers make available straight propane. Octane numbers range from 100 to 125 by the Research Method.

Proportions are usually varied with



LEFT. The Hall-Scott LP gas engine installed in an Autocar truck. Note carburetor, heat exchanger, modified manifolding. **BELOW.** Right side of H-S engine showing cold manifold and inlet of coolant for control of temperature



Fleet OK

climatic conditions. Propane is the lighter fuel and is used in larger proportions during cold weather. It has less Btu's but is of higher octane rating. The boiling point of propane is -44°F and of butane $+31^{\circ}\text{F}$ at atmospheric pressure. While the Btu value per pound is slightly higher than for gasoline, the weight is about $4\frac{1}{2}$ lb per liquid gallon, as compared with $6\frac{1}{2}$ lb per gallon for gasoline. The higher octane rating, however, makes it possible to use this fuel in higher compression engines, so that even with a lower Btu rating, the fuel produces comparable power to gasoline. In fact, it is stated that by combining more efficient aspiration with this higher octane fuel, LP gas engines develop more horsepower than do gasoline engines of similar displacement.

In LP gas engines fuel is carried in special tanks on the vehicle in liquid form under pressure created by the vapor pressure of the fuel itself. Tank pressure is reduced through a pressure regulator to 6 to 8 lb. Vaporization of the fuel takes

place in this valve, and the necessary heat is supplied by a heat exchanger. The fuel then passes through a low pressure regulator to the special gas carburetor, where it is mixed with air. When it enters the carburetor, it is in a true dry gaseous state.

The fuel is vaporized before being mixed with air, vaporization being accomplished by the use of a heat exchanger utilizing the hot water from the vehicle cooling system.

SAVINGS cited for LP gas engines over gasoline and diesel are these:

1. Approximately 20 per cent decrease in fuel costs over gasoline engines.

2. As much as five times the mile-

age between oil changes.

3. Over twice the mileage between engine overhauls.

4. Lower routine maintenance costs (fewer adjustments, road failures, etc.).

LP gas is inherently better fitted for internal combustion engines because the fuel enters the combustion chamber as a dry gas, completely vaporized. Thus it is distributed evenly to all cylinders. There is no need to preheat it to attain efficient combustion. Thus modified, or cold type intake manifolds are employed. With intake manifolds designed for maximum breathing capacity, mass air flow is improved, and improved

(TURN TO PAGE 64, PLEASE)

By M. K. Simkins Commercial Car Journal Technical Editor

... LP Gas Gets the Fleet OK

Continued from Page 63

volumetric efficiency is obtained.

Because of the lower weight per gallon of LP gas as compared to gasoline, and consequently the lower per gallon Btu content of the fuel, it might be expected that under equivalent conditions LP gas would give less miles per gallon. However, when operating on LP gas, the higher compression ratio permits greater efficiency from the fuel. This offsets the lower Btu rating so that at least comparable mileages are obtained. In some cases LP gas is giving better fuel economy, but of course operating conditions and many other factors influence this.

Engine operation, especially at idle, is said to be smoother since smooth power output with high torque and less vibration between cylinders is obtained with proper fuel distribution. Butane-propane is a slower burning fuel and as a result provides a longer impulse on the power stroke. This results in more uniform pressures on the bearings and smoother operation than gasoline engines. No liquid particles are present to leak past the piston rings and dilute crankcase oil, and for this reason fleets are getting up to five times the mileages between oil changes. On a construction job on the Garrison Dam for instance, oil changes are made at 500 hours on LP gas engines, while diesels doing the same work must have changes at 50 hours.

There is little carbon formed with LP gas due to this efficient combustion with

the result that ring and valve failures and engine wear is reduced sometimes as much as 50 per cent. The exhaust is virtually free from carbon monoxide and odors, since all fuel is burned. In addition detonation is non-existent. Cold starting is said to be improved over that of any other fuel.

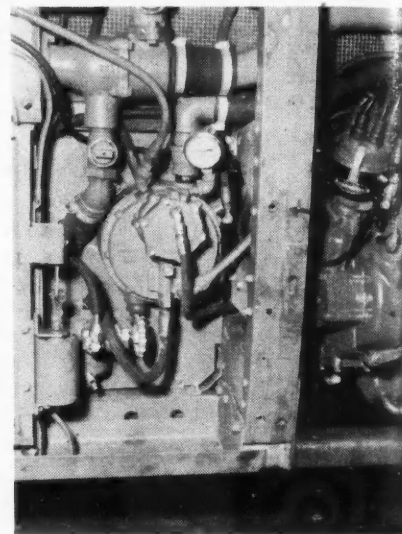
The LP gas system is relatively simple. Spark plug troubles are reduced due to the cleaner burning fuel; vapor lock is eliminated. Fuel pumps are not required. Fewer adjustments are required, and with simpler accessories, the engines are said to be more reliable from the standpoint of road failures.

While complete maintenance figures are lacking at this time, several reports indicate that costs can be reduced by 25 to 50 per cent below that of gasoline engines.

Conversion to LP Operation

PRESENTLY there are at least three heavy-duty engines designed specifically for LP gas, for over-the-road use. Other manufacturers, however, are anticipating the development of new markets for this type of power plant. One heavy-duty engine manufacturer recently announced that all their engines could be factory-equipped for LP gas operation. Several others are making kits available for field conversion.

It is generally agreed that factory converted and factory equipped engines perform better and burn fuel more efficiently than most converted units.

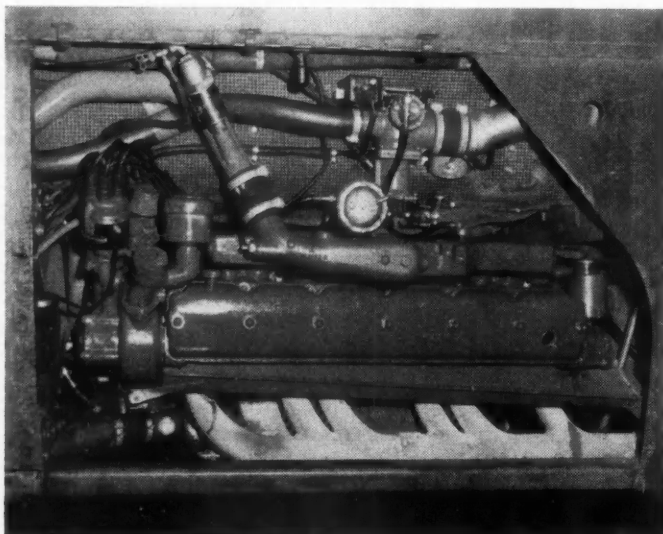


The mixer designed for LP operation on a Fageol engine. All lines are high pressure, covered with loom and protected against damage

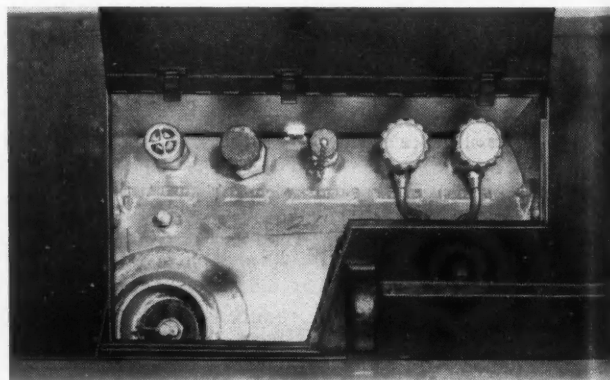
However, field conversions can be made at relatively low cost to the operator. Fuel system change is about the only modification absolutely necessary, but authorities agree that for best economy and maximum horsepower, compression ratios should be raised and heat should be removed from the intake manifold.

Compression ratios can be increased on most engines by installing high altitude pistons or by machining off the cylinder head. Precaution should be observed here, however, for not all engines are built with sufficient margin to withstand substantially increased compression ratios. It is recommended that ratios be upped to at least 7.5, and some low compression engines do not use heavy enough bearings, cylinder walls

(TURN TO PAGE 96, PLEASE)



LEFT. Standard Fageol engine converted to LP gas operation. BELOW. Typical fuel tank showing relief valve, filler, vapor return, vapor and liquid valves. Tanks are braced and well protected



Survey Shows Brake Linings Average 35,000-40,000 Miles



SURVEY NO. 17

Study includes riveted lining life and a sampling of bonded lining performance for service brakes. Hand brake lining averages 49,990 miles. Drums last about two sets of linings. Four other brake parts tabled

Part 1

Analysis by A. W. GREENE, Managing Editor, Commercial Car Journal

THIS IS THE FIRST installment of three articles that will report on the life of truck and bus braking systems and their major parts. This article covers such basic brake parts as linings, drums, and a few other parts.

Inadvertently, the facts obtained in this study give an interesting, although inconclusive, comparison between riveted and bonded brake linings. The facts, as reported, show that the life

obtained from bonded brake linings is only approximately 5000 miles more as a national average than that obtained from riveted brake linings. The latter reportedly give 35,301 miles while the former 40,368, as shown in Table 1.

This small difference in favor of bonded brake linings comes as quite a surprise, in view of numerous reports and claims that at least 25 per cent greater mileage is obtainable from



35,301 MILES

Brake Lining Life as Reported by Vocational Groups

Table 1

Mileage varies from lows of 6000 to a high of 200,000 for service brakes, and from 10,000 to 300,000 miles for the emergency brake linings

MILES												
VOCATIONAL GROUPS	Number of Fleets Reporting	BONDED BRAKE LINING		Number of Fleets Reporting	RIVETED BRAKE LINING		HAND BRAKE LINING		HAND BRAKE DRUM OR PRESS PLATE			
		Mileage			Mileage		Mileage		Mileage			
		Range (Last 000 Omitted)	Average		Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average		
FOR-HIRE CARRIERS.....	7	9 - 100	55,571	28	6 - 140	52,821	30 - 150	40,000	50 - 300	142,368		
FOOD DISTRIBUTION.....	12	11 - 200	45,583	38	10 - 100	29,673	10 - 300	55,194	15 - 300	100,417		
GOVERNMENT.....	7	12 - 45	24,357	25	10 - 65	25,994	12 - 100	40,450	20 - 200	87,964		
CONSTRUCTION AND MINING.....	1	30	30,000	3	25 - 50	33,333	20 - 100	56,667	75 - 250	141,667		
INDUSTRIAL.....	1	25	25,000	5	10 - 100	52,000	50 - 80	68,333	150 - 300	225,000		
PETROLEUM.....	4	25 - 200	76,500	7	15 - 200	65,282	20 - 162.2	79,460	20 - 600	185,000		
PUBLIC UTILITY.....	13	6 - 60	27,385	21	6 - 53	23,333	12 - 100	46,158	50 - 100	68,182		
RETAIL DELIVERY.....	3	22 - 30	27,333	17	7 - 70	27,765	10 - 125	47,589	25 - 250	83,077		
TRUCK RENTAL.....	2	20 - 40	20,000	4	12 - 30	21,500	15 - 40	23,750	60 - 100	78,333		
TRUCK AND BUS FLEETS, MIXED.....	2	53.7 - 100	76,830	12	10 - 60	47,625	15 - 115	80,625	100 - 240	178,000		
TOTAL AND AVERAGE.....	52	6 - 200	40,368	160	6 - 200	35,301	10 - 300	49,990	15 - 600	111,229		
ALL VOCATIONAL GROUPS												

Replacement Parts - BRAKES



bonded brake lining. The facts as reported in Table 1, show that the increased mileage is approximately 14 per cent.

While time and experience will either prove or disprove the reported mileage of bonded brake lining to be truly average, there are several reasons why we cannot accept the figures as being conclusive. In the first place, only approximately one-third of the total number of fleets reporting on riveted brake linings furnish data on bonded brake linings. In the second place, many of the fleets using bonded brake lining only have had a limited experience in the replacement of bonded brake shoes. Finally, in several vocational groups the averages shown in the table are based on averages from one or two fleets within those groups.

Perhaps the most pertinent information concerning brake lining life is that, while the national average represents good life, only four fleet groups show mileage in excess of that figure. It looks like there are many fleets that are not getting maximum life out of the brake linings on their vehicles. The experience of the reporting bus fleets, with their multi-stop operation, certainly serve as a good example.

Up to this point, the analysis of brake lining life has been confined to service brakes. Table 1 also shows the average life obtained from hand brake linings. The national average for this type of lining is 53,181 miles.

Brake Drums Average 86,124 Miles

THE average life of brake drums is 86,124 miles, as shown in Table 2. This shows that fleets replace drums approximately after wearing out two sets of linings. The reported mileage ranges provide interesting corroboration not found in the average figures. The reported ranges of the linings are from 6000 to 200,000 miles, and the range for brake drum mileage is 12,000 to 400,000 miles.

Half of the vocational groups seem to have no difficulty exceeding the national average by an appreciable amount. It is especially interesting to note that the truck rental fleets, whose lining mileage is appreciably below the national average, show a much higher than national average for drums. This is a hard one to figure out.

The life of hand brake drums, or pressure plates, is shown in Table 1. The national average for these parts is 115,000 miles. It is interesting to note that six vocational groups get better than 100,000 miles for these parts.

Other Brake Parts

BRAKE camshafts and bushings average over 100,000 miles, as shown in Table 2. The life of the former part shows an average of 171,684 miles. The average life of bushings is 100,418 miles.

Only three vocational groups report better than average national mileage for brake camshafts, while five groups exceed the national average for the life of brake camshaft bushings. The three former groups are included in the five latter groups.

Slack adjusters also give good mileage. As shown in Table 2 the national average life is 133,974. It is interesting to note that three vocational groups show an average that is better than twice the national average figure.

The next installment in this series will be a study of brake parts peculiar to hydraulic braking systems.



86,124 MILES

Can Brake Drums Give 100,000 Miles, or Better?

Table 2

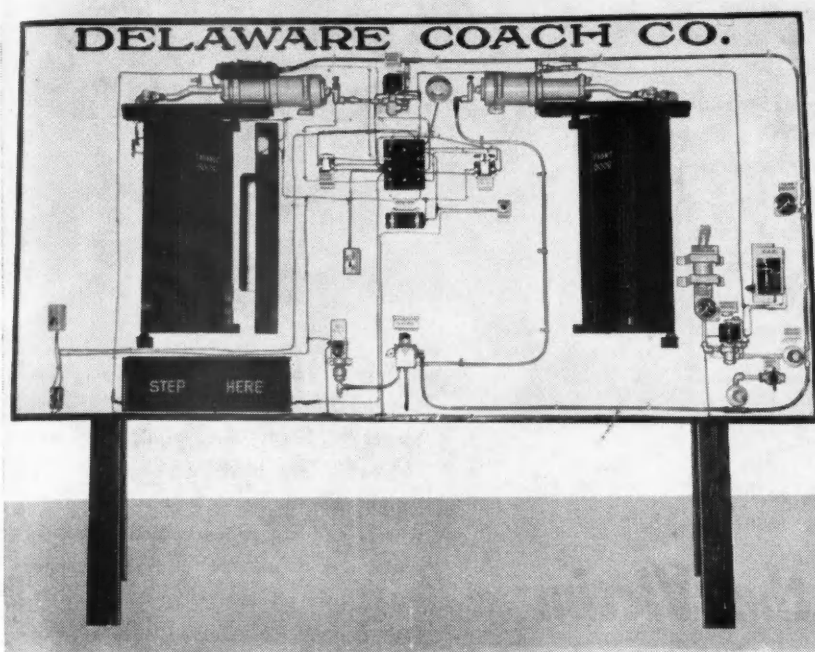
While national average is 86,124 miles, fleets in every vocation report 100,000 to 400,000. Camshaft parts, adjusters also in 100,000 class

VOCATIONAL GROUPS	Number of Fleets Reporting	BRAKE DRUMS		BRAKE CAM SHAFT		BRAKE CAM SHAFT BUSHINGS		SLACK ADJUSTERS	
		Mileage		Mileage		Mileage		Mileage	
		Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average
FOR-HIRE CARRIERS.....	28	50 - 300	116,875	60 - 300	173,478	50 - 300	123,400	20 - 300	170,714
FOOD DISTRIBUTION.....	35	20 - 200	70,109	10 - 400	114,880	6 - 400	101,778	20 - 500	122,739
GOVERNMENT.....	23	20 - 200	58,314	15 - 200	74,288	10 - 200	65,838	10 - 150	70,056
CONSTRUCTION AND MINING.....	3	63 - 113	82,000	200	200,000	200	200,000	75	75,000
INDUSTRIAL.....	5	35 - 300	139,000	75 - 300	158,333	75 - 300	175,000	75 - 500	268,750
PETROLEUM.....	7	50 - 400	139,714	70 - 600	242,500	70 - 300	145,000	100 - 600	286,500
PUBLIC UTILITY.....	18	12 - 100	63,222	50 - 150	79,500	20 - 150	78,500	50 - 150	79,125
RETAIL DELIVERY.....	16	20 - 200	81,250	20 - 200	87,417	20 - 200	63,333	20 - 150	67,273
TRUCK RENTAL.....	3	60 - 150	101,667	60 - 200	130,000	60 - 75	67,500	60	60,000
TRUCK AND BUS FLEETS, MIXED.....	9	50 - 200	111,746	45 - 240	151,667	15 - 120	72,500	30 - 500	140,833
TOTAL AND AVERAGE.....	147	12 - 400	86,124	10 - 600	171,684	6 - 400	100,418	10 - 600	133,974
ALL VOCATIONAL GROUPS									

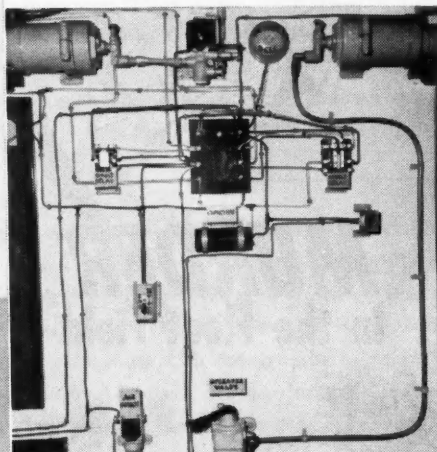
Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIER—Motor Freight Operators in Local and Over-the-Road Service.
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.
GOVERNMENT—State, County, Municipal, and Federal fleets.
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.
INDUSTRIAL—Fleets operated by Manufacturers.

PETROLEUM—Production and Distribution fleets.
PUBLIC UTILITY—Gas, Power, Water and Telephone fleets.
RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Store, Beverage fleets.
TRUCK RENTAL—Agencies leasing motor trucks.
TRUCK AND BUS FLEETS, MIXED—Passenger carriers operating own truck fleets.



LEFT. This 8x4-ft display board contains all the working parts of Delaware Coach Co.'s improved bus door control system. Connected to air and electric lines, actual performance is duplicated. **BELOW.** Close-up of center portion of panel, showing operator's door control lever at bottom center



Working Model Achieves Smooth Bus Control Changeover

IT IS A POLICY of management that all our supervisors, operators, and shop personnel be familiar with every part of our buses and trolley coaches. This policy has been responsible for our various driver and mechanic training courses (See "Mechanic Training Boosts Bus Maintenance Quality," CCJ, March, 1950), and many of our shop practices.

This policy pays off in many ways. A thorough understanding of the operation and maintenance problems of the vehicles leads to better care, co-operation and mutual understanding of each man's duties and problems. The more thorough knowledge gained by this practice has resulted in many constructive suggestions that have helped improve our maintenance practices and service to the public.

In the process of familiarizing our personnel with the operation and maintenance details of our vehicles

Improved door control system completely integrated on an 8x4-ft display board to familiarize operating and maintenance men

By J. S. Wanstall

Superintendent of Equipment, Delaware Coach Co.,
Wilmington, Del.

we have used many visual aids. One of the best was inspired by the need of acquainting our personnel with some improvements developed for our bus door opening and shutting controls. Because these controls are located in various parts of the vehicle, with many of the parts located behind panels, frames and undercarriage, it is extremely difficult to visualize all

the components and how they function in their proper relationship as actuated by the operator and passengers.

Working Model Devised

THE solution was a working model, containing all component parts, mounted on an 8 x 4-ft display board, (TURN TO PAGE 122, PLEASE)



MURDER In the Fleet Field

the Victim

Front Wheel BEARINGS

Lubricant, load and adjustment failures are discussed
and illustrated to aid in diagnosing common troubles

By W. A. Hubbell

Fuel and Lubricant Engineer,
Standard Oil Co. of California

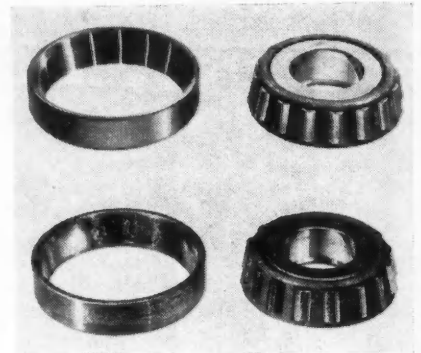
The most important step in repairing any failure is the correct diagnosis. For this reason the purpose of this discussion is to review data gathered from the inspection of a large number of used wheel bearings in an effort to assist the operator and mechanic to draw a sharper line between a bearing that has failed because of the lubricant, and a bearing that has failed for mechanical reasons or has worn out because of high loads or mileage.

It is a generally accepted theory that the ability of the anti-friction bearing to carry heavy loads is due to the flexing or deformation which takes place as races and rollers enter

and leave the load zones. While the deflection is microscopic it can be compared to the deflection of a tire. After billions of cycles, even a properly fitted and loaded bearing, running in extreme pressure gear lubricants will reach that point when metal fatigue will begin. When this occurs, the face of the cup, cone or rollers will start to crack and spall and from this point on the deterioration of the bearing is rapid.

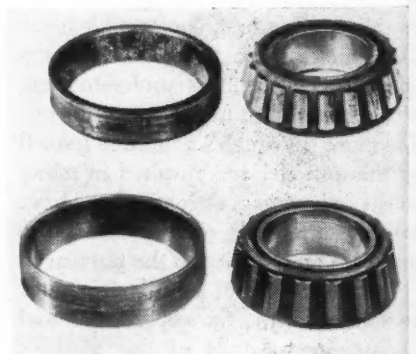
In the case of grease lubricated anti-friction bearings, the high unit pressures existing on a very fine line of contact makes the maintenance of a full unbroken oil film highly im-

(TURN TO PAGE 118, PLEASE)



Case 1. This is a case of short wheel bearing life in new equipment. Several pieces of heavy duty equipment were shipped a long distance by rail with the weight of the vehicle resting on the wheels and not properly tied down. Inspection revealed that the wheel bearings were burnelled in the spots where the rollers contacted the cups and cones. These front wheel bearings failed in most of the equipment in less than 15,000 miles but replacement bearings have since run over 100,000 miles without failure.

Case 2. A company owning approximately 150 units of one model, bought 540 wheel bearings costing \$7,000 in nine months. These bearings ran at such high temperatures that etching and spalling sometimes started in as little as 1500 miles and most of them failed completely in less than 5000 miles. Several greases and bearing adjustments were tried with little, if any, improvement and finally the wheel hubs were machined to take a larger bearing. This modification increased the bearing area 50 per cent and the bearing life 300 per cent. The final correction, however, was pulling the axle tubes and boring out the housing to take a larger axle tube and bearings.





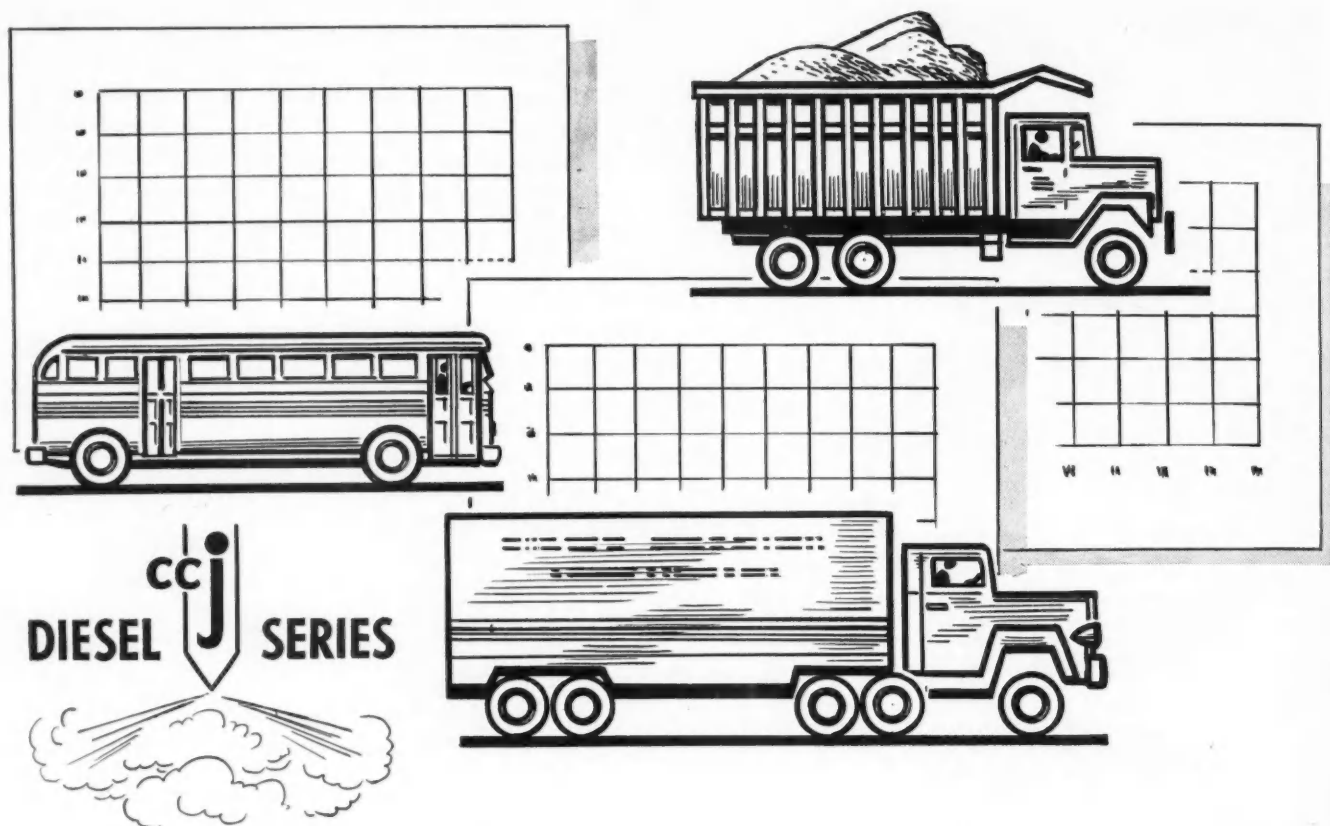
◀ Case 3. A trucking company bought a steam cleaning plant and a few months later discovered that the wheel bearings, transmission bearings and greases were suddenly no good. However, it developed that they shot everything with the new steam gun and often left the parts lay several hours before drying and oiling, with the result that little lines of rust or corrosion set up where the rollers contacted the highly polished cups and cones. These rust lines were so small they could hardly be seen and probably could not have been measured. But the rollers found them and the little curb the rollers had to climb at each one of these points made a shock load that soon resulted in a failure.

◀ Case 4. In this case, after 300,000 miles of operation, some of the wheel bearings on a piece of equipment started to give chronic trouble, replacement bearings lasting only 8000 or 10,000 miles. All that was wrong was the cone had worn up into the axle about fifty thousandths of an inch. Wheel bearings are designed to have full line contact between the cone and rollers and while this mis-alignment only reduced the area about 50 per cent, it cut the life 90 per cent because the ends of the rollers that were heavily loaded started flaking off. Worn axles and hubs must be repaired or replaced.

◀ Case 5. We are all familiar with the little truck or trailer that started out to do a big job and came home bow-legged with bent axles and bearings out of line so they failed even quicker than they would have from the overload. Or the big truck or trailer that hit the high curb or dropped into that bad hole on the detour at high speed, with the resulting mis-alignment or maybe even a fractured bearing along with the broken springs and bent frame you noticed and repaired.

◀ Case 6. Complaint—Grease in rear wheel bearings of trucks reported to have thinned out and broke down until it was like water and ran out all over the brakes. Greases are a mixture of soap stocks and oil. When the differential lubricant is allowed to run into the bearings they act as a perfect mixer. The only answer is proper adjustment and good seals to keep the gear lubricant out.

◀ Case 7. Another complaint is grease hardening or drying out in use. This complaint is most common in equipment with double nut bearing adjustment. If the adjustment is too tight, the tightening of the lock nut forces the bearing into too tight an adjustment, with resultant increase in temperature which speeds up oxidation of the oil and thickening of the grease.



Where and When Does the

While the diesel offers better fuel economy, reduced fire hazards, less frequent maintenance, it also adds to initial cost, weight and overhaul expense. The operator should consider yearly mileage as well as loads in making a choice

▼ MANY truck and bus operators today are examining diesel engine potentials, particularly with long hauling, over mountain routes and with high yearly mileage operation. Others are considering the possibility of using this type of power in smaller vehicles in less rigorous operation but with high engine running hours. The results have stirred up an inter-

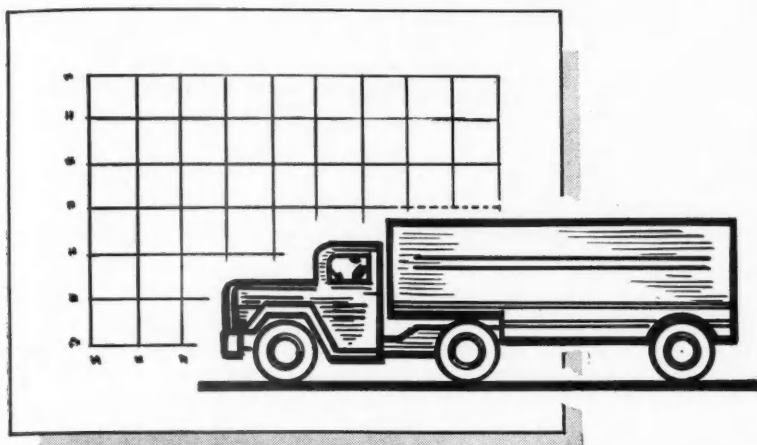
esting controversy on the subject of diesel vs. gasoline engines.

Manufacturers are promising diesel power plants to compete in many instances with the gasoline counterpart. Fleetmen, desirous of saving money and attaining improved power, are tossing the question into round table discussions the country over and are inviting experts to outline the advan-

tages of diesel power. Mechanics themselves are eyeing the development with no little interest, anticipating new maintenance techniques with this type engine.

That the popularity of diesel engines has grown appreciably within the last few years can be attested by the fact that there are today approximately 40,000 diesels in truck and bus service.

In 1938 there were only about 200 buses and 500 trucks with diesel power. By 1944, an ODT study established the number of diesel trucks at 7600 and the bus figure is believed approximately the same for a total of approximately 15,000. At the end of 1948 a leading manufacturer estimated the number of diesel buses at 18,000, trucks at 12,000 for a total 30,000. In addition there is a heavy percentage of specialized off-highway equipment using diesel power and not included in these totals.



By M. K. Simkins

Technical Editor
Commercial Car Journal

DIESEL Pay Off?

The figures are imposing, the advantages of diesels are many, but fleetmen should be cautious in converting to this type engine. It must be recognized that oil burning engines are not the answer to all types of operating problems even though the future promises new efficiencies and developments in this engine.

It has only been recently that the diesel engine could compete satisfactorily with gasoline engines. Up until the last few years diesels were characterized by smoke, odor, noise, rough idle. Limitations in speed range, lack of flexibility, excessive weight and physical dimensions made them unfitted to efficient over-the-road use. Today most of these shortcomings have been remedied so that the diesel engine can be interchanged with the gasoline engine, in the same chassis. Weight is but little more than that of the gasoline engine, and performance is comparable if not superior. With im-

proved balance and refinements in combustion and injection systems, modern diesels serviced properly are relatively free from smoke, excessive noise and odor, and under load are equally as smooth as the gasoline. Thus new markets have opened up for diesels.

The operator should weigh the following advantages and disadvantages before choosing them, however, and he will do well to consider *when* and *where* they will save him money.

Advantages—

1. 50 to 75 per cent improvement in fuel economy.
2. Reduced fire hazards and resultant insurance costs.
3. Less frequent service and adjustments necessary.
4. Fewer road failures resulting from more reliable accessories and parts.
5. Cheaper fuel, at present due in part to elimination of Federal excise tax.

Present Problems—

1. Higher initial cost of equipment.
2. Greater weight per horsepower.
3. Higher maintenance costs when overhaul is required.
4. More complicated starting procedure.
5. More costly rebuilding equipment for fuel system.

While figures vary with the operation and conditions, it is estimated that the diesel-powered vehicle will enjoy from 50 to 75 per cent greater fuel economy than a gasoline engine of comparable size. This is due to the inherent efficiency of this type engine, and more will be said about this in a later article. Fleet records have indicated that where a gasoline engine gets four miles per gallon of fuel, the diesel gets around 6½ miles per gallon, but of course this figure should be considered only as a comparison. In addition, diesel fuel is 20 to 25 per cent cheaper on an average in most sections of the country. However, manufacturers emphasize that fuel price should not be a factor in deciding upon diesels, due to the impossibility of predicting future trends.

Diesels offer further savings in that they are considerably safer than gasoline vehicles. Fire hazard, in case of collision is recognized as less, due to the fact that the fuel is less inflammable and there is no ignition system to ignite it. For this reason insurance companies have lowered premiums up to 15 per cent with diesel-powered equipment. With large operation and heavy insurance policies, this saving becomes appreciated.

Accessories on the diesel are of heavy-duty quality and as such require less service. With no carburetor, distributor, spark plugs and other ignition parts requiring frequent adjustment, the diesel will operate longer without attention. Furthermore, there is less possibility of minor breakdowns because of this. Once the diesel is adjusted, it continues to function over longer periods without attention. Thus road failures and resultant delays can be reduced appreciably.

It is recognized that the original price of the diesel is and will continue to be higher than that of the gasoline engine. This is necessary by the

(TURN TO PAGE 112, PLEASE)



TIRE PRICES

Favorable Despite Increases

Annual round-up of tire manufacturers reveals improved materials, techniques; increase in recaps; "cold rubber" truck tires, wire cords, thicker treads still under development; new type cord hinted

By Len Westrate
CCJ Staff Correspondent

TIRE PRICES are up in the air. That doesn't mean prices are high—it merely means that the price structure, especially in truck tires is uncertain at the moment.

While it is true that major companies increased prices on first line truck tires about 5 per cent recently, it still is highly uncertain as to whether or not that is going to mean higher prices to fleet operators. Behind this seemingly contradictory statement lies a story of higher manufacturing costs balanced off against

intense competition. In order to bring CCJ readers a better understanding of price and development trends in the tire industry, we have just completed a survey among the major manufacturers and present herewith a general roundup of what is going on.

Leading up to the latest tire price increase were statements by some of the smaller companies that tire prices would have to go up and that they might increase as much as 10 per cent in price this year. Whether or

not that is going to be true remains to be seen because of the fiercely competitive nature of the business and its traditional pricing policies. There is some reason to doubt that tires are going to cost the careful truck tire buyer much more than they have previously.

As every large fleet buyer knows, there are two prices in the tire business—the list price and the price the buyer actually pays after a good bit of bargaining. In fact, one company says bluntly that the two $3\frac{1}{2}$ per cent increases put into effect last Fall did not result in higher prices for fleet buyers because of advance buying and some rugged dealing. Anyway it takes from 30 to 60 days for a price increase to be felt because of advance notice that usually is given, enabling operators to make forward commitments in some cases and inspiring some dealers to sell at the old price as long as their inventory lasts.

Price Versus Cost

THERE is no doubt that fleet operators today are in a far better position on tire costs than they are on anything else they buy. For example, on Oct. 20, 1941, a 8.25-20 10-ply tire sold for \$67.65 list, plus \$4.38 excise tax for a total of \$72.03. Today that tire is selling, after the 5 per cent increase, for \$71.95 list, plus \$3.85 excise tax, an increase of \$3.77 or about 5 per cent. The excise tax is lower now because of the lighter weight of the tire due entirely to the use of rayon instead of cotton cord. Before the last increase, the differential over the prewar price was only 32 cents, or less than one-half on one per cent. As a result, the buyer gets a much better tire than he had prewar because of the rayon cord construction, plus all the advantages of ten years advance in manufacturing techniques, at a cost increase that is insignificant. Compare that with the price increases on trucks, trailers, parts, fuel, and practically any other item the operator buys.

Whether or not that favorable cost position can be maintained is an open question. Cost to the manufacturers have increased substantially in recent months and the profit margin is very near the vanishing point.

(TURN TO PAGE 90, PLEASE)

Bendix Products Division

CREATIVE ENGINEERING

GEARED TO QUANTITY PRODUCTION

MORE AND MORE
THE TREND IS TO

HYDROVAC

THE WORLD'S BEST PROVEN
POWER BRAKE

When fleet operators all over the nation express an emphatic preference for a particular product, you may be sure this preference is based on operating efficiency and economy.

In the field of power braking, for example, the unrivalled popularity of Hydrovac* is the direct result of unmatched performance at the lowest possible cost.

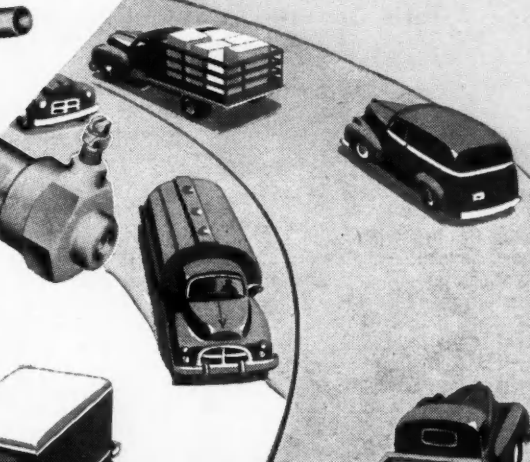
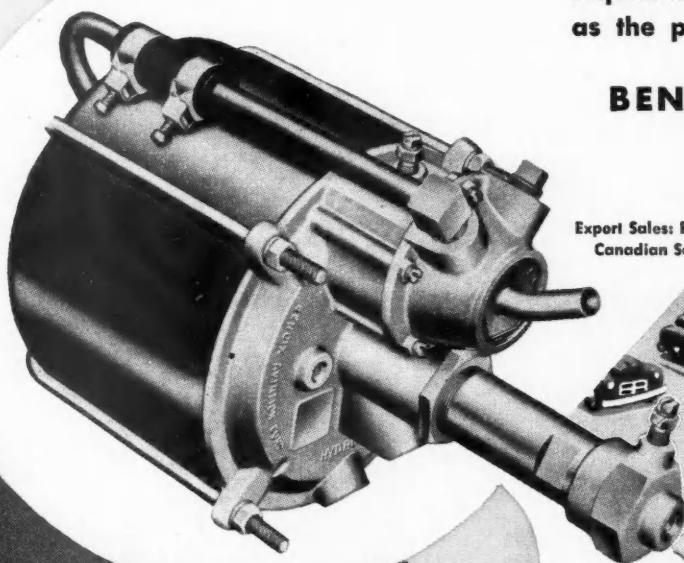
Outstanding design, manufacturing excellence, and a complete line of power braking units, engineered and priced to meet the fleet owners' requirements, make Hydrovac the logical as well as the popular choice wherever trucks operate.

*REG. U. S. PAT. OFF.

BENDIX • PRODUCTS DIVISION • SOUTH BEND



Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.
Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada



Centermount
Emergency
and Parking Brake



B-K Power Braking
System for Cargo Trailers

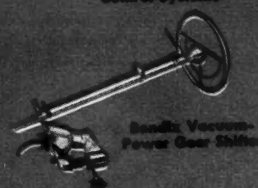


Bendix Hydraulic
Power Steering

BUILDERS
OF THE BASICS
OF BETTER
MOTOR VEHICLES



Bendix Automatic
Clutch and Gear Shift
Control Systems



Bendix Vacuum-
Power Gear Shifter



Bendix Brakes for
Buses, Trucks, and
Passenger Cars

Vehicle Operating Costs of the U. S. Government

The following tabulations are based on data compiled from the annual motor vehicle reports submitted by Federal departments and agencies in accordance with Budget Bureau standard procedure. The figures will be of interest to civilian fleet operators.

Excluding combat vehicles, more than 237,000 motor vehicles were operated by the Federal Government as of June 30, 1949. The Post Office Department is not included

here due to the fact that data was submitted on an hourly basis rather than on a mileage basis. The data here represents only those departments which operate a relatively large number of vehicles in several weight classes.

While progress has been made in standardizing vehicle accounting, it should be noted that some of the data may not be directly comparable since some agencies have better cost systems than others.

Motor Vehicle Statistics of U. S. Government Civilian Departments and Agencies
July 1, 1948 to June 30, 1949

Department or Agency	Auto-mobiles	Special Cars (3)	Light Duty Trucks (4)	TRUCKS							All Tractor-Trucks	Buses (5)
				1-Ton	1½-Ton	2-Ton	3-Ton	4-Ton	5-Ton	Over 5-Ton		
Total Vehicles Reported On (1)	26,074	4,619	34,362	7,238	14,194	3,545	2,710	760	807	673	889	1,840
Average Miles Per Vehicles (2)	8,897	6,134	6,312	5,400	3,042	3,285	3,314	3,420	3,089	2,407	3,592	9,287
Average Miles Per Gallon (Fuel)	14.9	11.8	13.1	10.4	7.4	6.0	4.6	3.2	4.1	3.1	4.0	5.6
Cost Per Mile Averages (Cents):												
Operation Cost Per Mile . . . . .	.020	.027	.022	.027	.038	.048	.054	.084	.058	.085	.088	.048
Maintenance Cost Per Mile . . . . .	.015	.026	.019	.023	.045	.061	.070	.147	.092	.172	.119	.042
Tire Cost Per Mile . . . . .	.002	.003	.002	.003	.006	.009	.008	.025	.018	.026	.015	.004
Total Operating & Maintenance and Tire Cost Per Mile . . . . .	.037	.056	.043	.053	.089	.118	.132	.256	.168	.283	.222	.094

Total Operating and Maintenance Cost Per Mile By Departments and Agencies

Department or Agency	Auto-mobiles	Special Cars (3)	Light Duty Trucks (4)	TRUCKS							All Tractor-Trucks	Buses (5)
				1-Ton	1½-Ton	2-Ton	3-Ton	4-Ton	5-Ton	Over 5-Ton		
Government Printing Office . . . . .	.136	.030	.087		.101	.139		.196		.331		
Emergency Agencies . . . . .	.033	.064	.039	.028	.109	.109	.094	.110	.084	.158	.143	.068
Department of State . . . . .	.049	.057	.043	.038	.073	.071	.126		.089			
Department of the Treasury . . . . .	.038	.039	.040	.115	.074	.083	.094	.117	.138	.160	.160	.068
Department of Justice . . . . .	.035	.031	.034	.036	.050	.049	.059	.045	.092	.059	.047	.072
Department of the Interior . . . . .	.034	.055	.039	.057	.070	.086	.116	.196	.148	.323	.266	.048
Department of Agriculture . . . . .	.031	.044	.039	.043	.100	.104	.104	.105	.160	.289	.212	.086
Department of Commerce . . . . .	.030	.043	.030	.034	.054	.081	.078		.221	.055	.058	.051
Atomic Energy Commission . . . . .	.053	.073	.096	.090	.121	.256	.158	.288	.208	.388	.207	.099
Civil Aeronautics Board . . . . .	.030	.073										
Federal Security Agency . . . . .	.035	.046	.040	.049	.062	.097	.116		.071		.186	.095
Federal Works Agency . . . . .	.028	.053	.045	.091	.093	.124	.063	.303	.119	.211	.179	
Housing and Home Finance Agency . . . . .	.050	.054	.064	.080	.075	.079	.087		.072			.026
Tennessee Valley Authority . . . . .	.044	.048	.057	.061		.102	.170		.211		.180	
Veterans Administration . . . . .	.045	.073	.053	.147	.137	.140	.250	.299	.390		2.213	.164
Average Operating, Maintenance and Tire Cost Per Mile (Cents) . . . . .	.037	.056	.043	.053	.089	.118	.132	.256	.168	.283	.222	.094

(1) Grand total of all vehicles reported on—97,711.

(2) Average Annual Mileage of all vehicles—6,503.

(3) Ambulances, Station Wagons and Suburban Carry-alls.

(4) Includes ¾-Ton and Pickups.

(5) 11 Passengers or more.

All Around the U.S.A.

Sealed Power

MD-50 STEEL OIL RING

*The only ring with the
**FULL-FLOW
SPRING***

**Best for
OIL CONTROL**
even in
BADLY TAPERED
and
**OUT-OF-ROUND
BORES**

***Double the Drainage
with Half the Drag!***

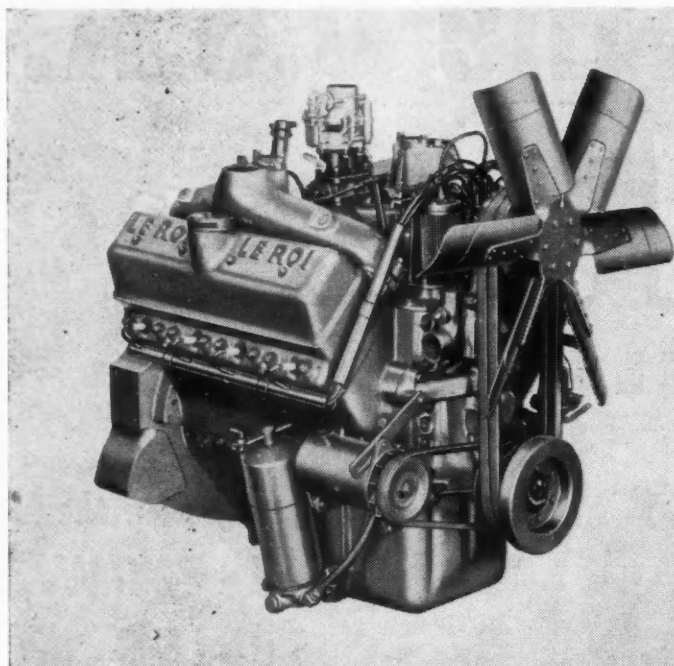


SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

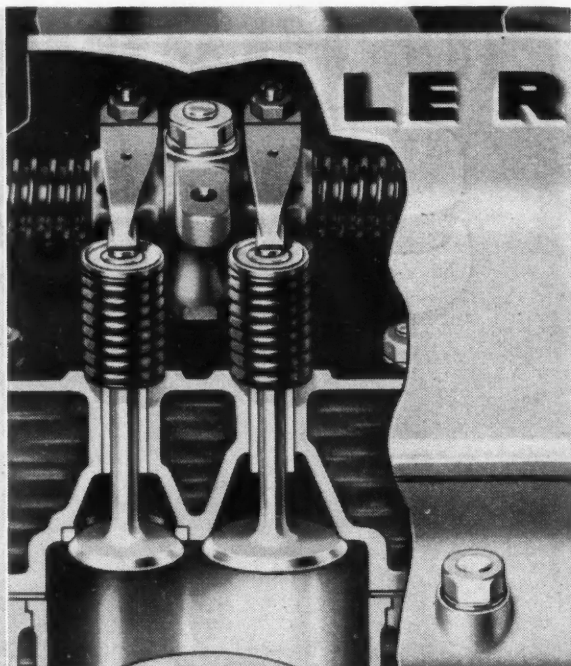
Sealed Power Piston Rings

BEST IN NEW TRUCKS

BEST IN OLD TRUCKS



V-8 design makes possible shorter crankshaft and smaller overall dimensions. Water pump is gear driven; exhaust manifold is water-cooled



Overhead valve design improves breathing capacity, provides for accessibility, makes possible better cooling. Wet-type cylinder liners are used

LE ROI Announces Overhead Valve V-8 Truck Engine

This 540 cu in. engine develops 207 hp at 3000

rpm with a compression ratio of 6.5 to 1

VA V-8 TRUCK ENGINE of the overhead valve type is being introduced by the Le Roi Co., of Milwaukee. Several improvements in Model H540 have resulted in higher peak hp, greater torque and a wider speed range. With a compression ratio of 6.5 to 1, this engine is rated at 207 hp at 3000 rpm using 73-75 octane gasoline. Specific fuel consumption without fan or radiator is 0.56 lb per bhp. Bore is $4\frac{1}{2}$ in.; stroke is $4\frac{1}{4}$ in., providing a displacement of 540 cu in.

Design of the engine is somewhat

unique for truck power plants in that the connecting rods are arranged side by side on the five-bearing crankshaft. Pistons are of aluminum alloy, cam and taper ground and fitted with two compression rings, one oil ring and one scraper ring. Alloy iron, wet type cylinder liners are readily replaceable. Drive for the water pump, mechanical governor and ignition distributor is through an accessory gear train located above and driven by the camshaft gear. Accessories, as shown in the illustration, are located for easy access to service.

The V-8 design has made possible a shorter crankshaft (9-in. shorter than comparable in-line sixes) and a more compact engine. Overall length of the engine is 43 in. A light flywheel with light-weight pistons and connecting rods, coupled with the short crankshaft and high bore-stroke ratio are said to provide favorable acceleration characteristics, improved rigidity and good balance. Design of the upper crankcase compartment provides for through splashing of the oil around the inner walls of the water jacket, thus accomplishing improved oil cooling. Quick warm-up is said to be characteristic of this engine, with resultant minimizing of sludge formation.

The overhead valve arrangement improves aspiration, improves cooling facilities and makes the engine adaptable to high compression ratios. Possible bore distortion is said to be eliminated due to the symmetrical upper cylinder sections. Valve rotators can be supplied. Individual manifolds provide for efficient carrying away of exhaust gases. The exhaust manifold is water-cooled.

The H540 can be provided with either magneto or distributor ignition. For butane operation, high compression heads and a special gas carburetor and vaporizer are available.



2-ton shown with 15-foot high rack body—also available on 1½-ton chassis

Get the extra earning power of Studebaker's low-cost power!

GET a winning combination of high torque and money-saving gasoline mileage for your new-truck money!

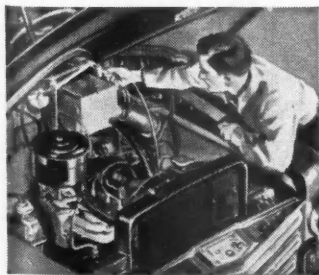
Follow the lead of many of America's most exacting truck buyers. Cut your hauling costs substantially with a husky, handsome, thoroughly modern new Studebaker truck.

Studebaker trucks come in a comprehensive range of sizes and wheelbases—2 ton, 1½ ton, 1 ton, ¾ ton and ½ ton models. And a nearby Studebaker dealer

can show you plenty of proof of the economies of Studebaker trucks in your kind of service.

It's convincing proof that the great Studebaker Power-Plus and Econ-o-miser truck engines generate America's thriftiest pulling power. It's impressive proof that Studebaker trucks wheel through tough going and up hard grades with amazing ease.

STUDEBAKER TRUCKS
Noted for low-cost operation



Just lift the hood! Everything's easy to get at! No standing on a box is necessary when you want to work on the engine or the ignition! No stooping under the dash to find instrument panel wiring! Everything is within easy arm's reach.



Foot-controlled floor ventilation airs the roomy Studebaker cab! Wide seat. Comfortable Adjust-Air cushion. Extra large windshield and windows. Weather-protected steps enclosed inside doors. Tight-gripping rotary door latches.



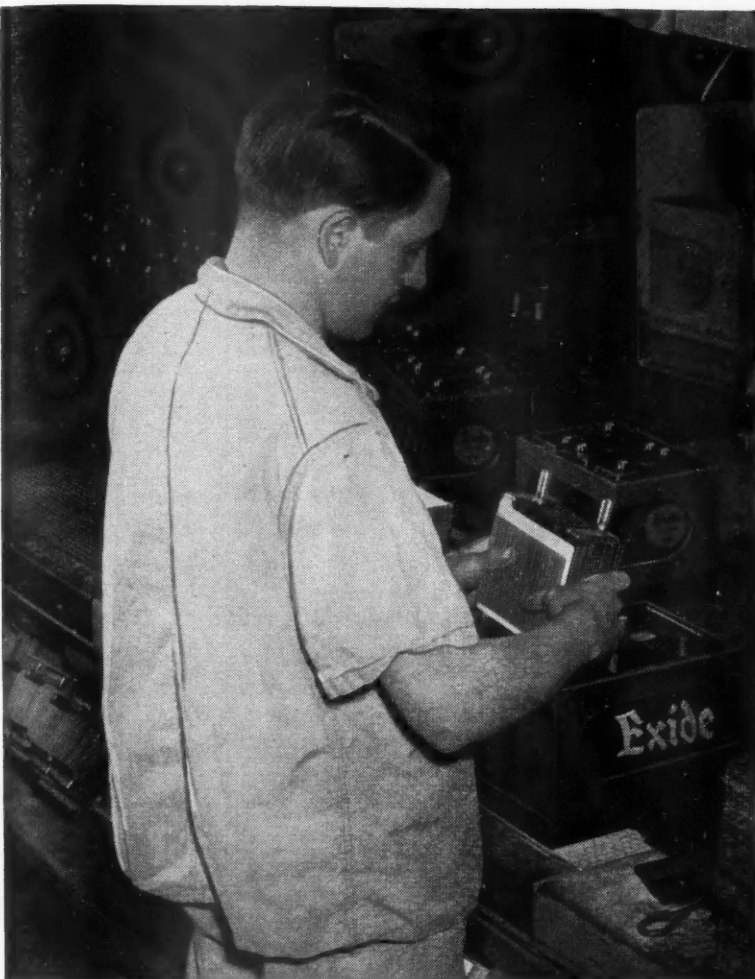
Studebaker's streamlined ½ ton, ¾ ton and 1 ton pick-ups have double-walled, heavy-gauge metal body—tail gate hinged at center and each end—loads slide on and off with ease. Big-visibility rear window aids backing and parking.



Wear-resisting Studebaker craftsmanship is the pride of father-and-son teams and thousands of other trustworthy Studebaker workmen. They build long-lasting soundness into all the new Studebaker trucks. Studebaker, South Bend 27, Indiana, U. S. A.

New Truck Registrations by Makes by States*

STATE		Auto-car	Brook-way	Chevrolet	Diamond T	Divco	Dodge	Federal	Ford	FWD	GMC	International	Ken-worth	Mack	Pontiac	Reo	Sterling	Stude-baker	White	Willys	All Others	Total
Alabama	Feb.	1		606	3	2	169	2	576		134	123		17	2			82	13	34	1	1,767
	2 Mos.	1		1197	4	5	353	3	1025		240	227		22	5			168	25	79	2	3,361
Arizona	Feb.			135	1		41		126		30	31		1				21	1	7	1	395
	2 Mos.			244	1	2	91		252		67	43	5	1		1		46	3	23	3	782
Arkansas	Feb.																					
	2 Mos.																					
California	Feb.	2		1745	14	39	376	8	1215		355	304		14	8	10	5	210	15	78	16	4,418
	2 Mos.	10		3157	32	82	755	9	2150		652	533	15	28	12	12	15	410	24	125	42	8,043
Colorado	Feb.			417	7		86		209		97	121		1		2		59	4	32	2	1,037
	2 Mos.			888	12	2	194	2	453		167	195		6		3		129	7	74	4	2,136
Connecticut	Feb.	3	4	126	3	2	45		108		29	30		12				11	7	11		382
	2 Mos.	8	8	295	7	10	109	5	213	1	68	74		30	2	1		27	15	21	2	896
Delaware	Feb.	2	1	77	1	1	14		82		11	20		2				5	10	2	1	228
	2 Mos.	3	3	155	1	4	36		166		25	44		2	2	1		18	12	5	3	480
District of Col.	Feb.			61	2	3	8	1	44		11	6		1	1	1		1	2	2	2	144
	2 Mos.	7		109	3	13	32	1	74		20	21		1	1	4		6	3	3	2	300
Florida	Feb.			367	6	13	156	6	384		71	84		28	2	6		101	9	24		1,267
	2 Mos.			668	16	17	298	6	705		132	156		59	2	9		191	22	63	4	2,348
Georgia	Feb.			1174	11	5	398	1	1177		279	342		22	3	14		243	27	70	3	3,770
	2 Mos.			2001	14	6	704	2	1896	1	477	505		45	5	21		402	50	131	7	6,267
Idaho	Feb.			125	3		44	1	86		50	36						37	1	26	1	411
	2 Mos.			211	3		66	1	149	1	66	66	2	1		2		58	3	42	12	683
Illinois	Feb.	7		1002	31	6	396	2	793	1	191	415		15	4	6		130	36	33	4	3,072
	2 Mos.	12		1954	61	21	725	4	1485	1	337	725		43	9	18		254	83	46	12	5,790
Indiana	Feb.			480	5	2	140	3	479	1	115	206		8		5		103	20	17	1591	1,591
	2 Mos.		2	925	8	9	316	3	919	1	208	375		14	5	6		185	35	43	3066	3,066
Iowa	Feb.			616	10	3	135	1	489		83	228		3		4		79	8	17		1,676
	2 Mos.			1240	19	6	347	1	941		186	441		14	1	9		166	17	23	2	3,413
Kansas	Feb.			493	5	2	91		365		94	146			4	3		82	6	12	1	1,274
	2 Mos.			774	6	6	177		641		155	247			5	11		76	8	23	1	2,130
Kentucky	Feb.			749	12	8	161		523		197	191		2	2	2		95	11	37	2	1,992
	2 Mos.			1305	14	10	288	3	924		295	297		2	2	6		145	12	86	2	3,391
Louisiana	Feb.			418	4		191	1	521		158	144		4	3	1		106	6	30	1	1,678
	2 Mos.			508	7		329	1	961		280	213		6	3	3		205	8	60	4	3,085
Maine	Feb.			985	1	1	77		167		114	105		17	1	2		42	6	9		820
	2 Mos.	3	4	476	3	2	151		310		181	177		26	6	3		73	8	36	3	1,464
Maryland	Feb.		6	250	2		80		149		44	51		8	3	4		26	32	9	2	673
	2 Mos.	1	11	509	6	5	180	13	348		89	101		20	6	8		52	35	24	4	1,412
Massachusetts	Feb.		8	272	6	2	99	1	192		45	65		17	2	7		33	12	5	2	778
	2 Mos.	21	17	560	23	11	358	4	451		145	152		43	8	19	2	78	22	27	4	1,945
Michigan	Feb.	3		1125	6	15	231	4	965		175	183		11	2	19		169	30	15	5	2,656
	2 Mos.	4		2047	11	30	525	11	1687	1	312	330		21	3	27		189	30	31	7	5,246
Minnesota	Feb.	1		591	4	5	133	2	454		83	154		2	2	2		139	6	16	2	1,603
	2 Mos.	1		1059	14	9	306	7	843	8	189	326		14	4	3		244	20	31	24	3,074
Mississippi	Feb.			458	1		274		377		157	98		4	4	1		89	2	26	1	1,325
	2 Mos.			1011	4		274	2	673		295	174		8	4	6		169	3	84	1	2,689
Missouri	Feb.	3		796	6	15	189		510		153	194		1		6		86	30	25	12	2,034
	2 Mos.	3		1372	13	26	362	1	927		283	329	2	17		12		172	56	44	22	3,641
Montana	Feb.			65	2		27		49		22	33						13	1	33		248
	2 Mos.			230	6		71	2	148	1	50	91		1	1	1		37	3	76		722
Nebraska	Feb.			434	12	1	73		288		44	104		1	1	5		55	8	24	1	1,051
	2 Mos.			821	27	2	185		593	6	107	240		1	2	7		117	11	64	1	2,184
Nevada	Feb.			37			5		24		8	6						3	4	1		88
	2 Mos.			66			17		46		26	12						11	12	1		192
New Hampshire	Feb.			23	1		11		23		12			3	1			3	1	2		82
	2 Mos.			60	1		31		47		15	25		5	1			6	4			199
New Jersey	Feb.	7	23	443	41	23	160	5	462	1	150	139		21	15	4	1	56	15	25	4	1,595
	2 Mos.	9	25	820	59	38	364	8	798	4	287	253		71	34	7	2	97	40	50	9	2,985
New Mexico	Feb.			249			55		96		68	35						41	12	2		558
	2 Mos.			502			122		208		135	72	2					99	2	30	6	1,183
New York	Feb.	36	51	1168	72	24	613	10	767	10	400	550		173	7	39	13	162	91	130	29	4,343
	2 Mos.	76	130	2702	231	80	1527	42	1735	19	893	1342		456	30	103	18	422	229	282	69	10,386
North Carolina	Feb.	11		569	9	1	161	4	579		121	143		88	2	5		92	24	21	8	1,838
	2 Mos.	14		1141	9	3	371	5	1211		226	223		114	4	8	2	200	37	37	14	1,619
North Dakota	Feb.			174	1		55	1	161		32	92		3	1	1		37		18	1	577
	2 Mos.			267	2		84	2	229		51	156		3	1	1		56		41	3	896
Ohio	Feb.	12	2	995	21	18	290	9	1020	2	213	295		62	26	18		110	88	42		3,223
	2 Mos.	21	2	1953	35	36	680	18	1894	2	425	652		111	46	34		222	164	75	2	6,362
Oklahoma	Feb.	1		725	3	10	190		567		168	186		20	4	2		84	8	31	1	2,000
	2 Mos.	1		1182	5	12	322		909	1	259	271		20	4	16		145	18	61	2	3,228
Oregon	Feb.			135	3		40		73		27	24		2				15		18	3	340
	2 Mos.			277	5	4	98		213		71	70	1	2				40	1	44	6	834
Pennsylvania	Feb.	12	42	1039	22	2	412	8	896		261	308		52	9	21	1	113	57	51	10	3,316
	2 Mos.	20	78	1835	36	14	858	13	1669		433	583		134	21	51	3	215	104	92	16	6,175
Rhode Island	Feb.	2	1	50	1	3	29		38		12	27		8	2	1		8	3	1	2	188
	2 Mos.	6	1	116	2	5	67	1	96		28	58		14	5	4	1	19	8	7	2	440
South Carolina	Feb.			295	1	2	112		289		80	50		5	2			54	10	10		910
	2 Mos.	1		619	2	2	205		550		148	113		13	2			113	17	18		1,803
South Dakota	Feb.			161	8		44	1	166		26	76	6	1	3	1		31	2	23	3	552
	2 Mos.			301	21		93	2	281	3	50	151	8	1	3	1		58	2	41	4	1,000
Tennessee	Feb.	3		442	2		109		337		125	65	2	4		1		83	20	33	1	1,207
	2 Mos.	3	1	1137	4	1	369		793		283	152										



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Truck Specifications

Showing New Models and Revisions Since Last Issue

The specifications of new truck models and revisions in current models noted below have been received from truck manufacturers since publication of the Commercial Car Journal Truck Specifications Table in the April, 1950, issue. Readers are requested to make note of these changes. The complete Table will be included in the June, 1950 issue.

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY COMMERCIAL CAR JOURNAL

Brown

An additional diesel unit, Model 6DA844T, has been added to the Brown line. It is powered by a Buda 6DC844 engine, rated at 210 hp @ 2100 rpm. Full details can be found in the accompanying table.

Chevrolet

For COE models TPS, TRS, TSS, TP, TR, and TS, torque is rated @ 190 lb-ft with a maximum bhp of 100 @ 3500 rpm.

FWD

Two new 4-wheel drive and two new 6-wheel drive models have been added. Full details can be found in the accompanying table. Six-wheel model listed M6x6 should be corrected to M6x6G.

Studebaker

The Studebaker rear axle for truck model 2R5 is Model 679817 and for truck model 2R10, Model 679819. Both trucks have the Studebaker front axle Model 678860.

Marmon-Herrington

Additional brake drum areas for 4-wheel drive models are listed below.

Model	Brake Drum Area
MH-RC-4	887
MH-RH-4	1039
LD7-4	259
R3-4	308
Q5, 6, 7, -4	697
Q5, 6, 7, -L4	697

Duplex

Gear ratio range in high, for the 6-wheel model L6, is 8.15.

Oshkosh

Specifications for the new 6-wheel Drive Oshkosh model (D) W-1500-CD can be found in the accompanying table.

Reo

Five new models have been added to the Reo line. Complete specifications can be found in the accompanying table.

See April issue, Page 139
for specifications of other models

Line Number	MAKE AND MODEL	WHEEL-BASE		TIRE SIZES	ENGINE DETAILS										TRANS-MISSION		REAR AXLE			FRONT AXLE	BRAKES				FRAME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		Minimum Standard	Maximum Standard		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	Standard Rear	Maximum Authorized Tire Size (See note)	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M.	Number and Diameter	Main Bearings	Governor Standard	Make and Model	Forward Speeds		Make and Model	Gear and Type	Drive & Torque	Gear Ratio		Range in High	Make and Model	SERVICE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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This bus went 75,000 miles—more than 3 times the distance round the world—without a single Dayton Belt failure! Do your belts give you that kind of service?

Dayton Cog-Belts* do, because they are built to bend. Their "cog-space-cog-space" construction lets the belt compress without strain or distortion as it goes round the pulley. (Just as your finger does when you crook it—see the diagram, above.) You get increased flexibility, better heat dissipation, longer belt life, operation without breakdowns.

Free your fleet from belt troubles in '50. See the Dayton Distributor salesman. He also has the patented, die-cut, raw edge Dayton Fan Belt for automotive drives; ask to see it, too. Or write:

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* T. M.

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Safety often means the difference between a fleet owner's operating in the red or the black. Dayton has designed a colorful set of safety posters (17" x 22") that will help sell your drivers on safety. They are free to all fleets. Just fill out the coupon!



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L22. Accident Study

Here is an effective reminder in the form of a 32-page, illustrated booklet on the subject of traffic accidents. This data book with its humorous portrayal of both driver dops and pedestrian dunces should be in the hands of all who operate cars and trucks. The many cartoons are funny, but they have a message and may save many an accident due to carelessness, overconfidence or indifference.

Statistics in the booklet show that 97 per cent of last year's accidents were caused by drivers with at least one year's experience. There were fewer deaths last year, but injuries were higher. Fatalities totaled 31,800, according to these data, while injuries resulting from traffic accidents reached an all-time high of 1,564,000, which is 93,000 more than in 1948.

The data show that excessive speed caused 10,100 deaths and 398,700 injuries, while 75 per cent of the accidents were caused by the drivers of passenger cars. It is interesting, if appalling, to note that three out of four accidents occurred in clear weather on dry roads. And records prove that one is seven times as likely to be injured in an automobile between five and six in the evening as he is between six and seven in the morning.

For a complete report write L22 on the postcard and get your free copy.

L23. Gasoline Economy

Are you interested in saving up to 60 per cent of your gasoline bill? Such savings are possible for city drivers if

they adopt a system of "Planned Driving in City Traffic" as outlined in this booklet.

Here are some of the facts the booklet contains: By driving at 50 miles per hour instead of 70 on the open highway, a driver can save one gallon of gas or more out of every four. City drivers, by avoiding unnecessary stops, can save one gallon or more out of every three and take only 10 per cent more time over a 10-mile course.

By using lower gears for starting, and shifting to the next higher gears as soon as the engine will run smoothly in the higher gear, a driver will get maximum fuel economy. Second gear at 20 mph gives 15 per cent less economy than high gear at 20 mph, and low gear at 20 mph gives 35 per cent less economy than high gear at 20 mph.

When the temperature is 30 deg above zero, eight miles of driving are required to warm up lubricants so the car will deliver maximum economy.

Write L23 on the accompanying postcard for a free copy of this informative booklet.

L24. Extinguisher Record

It is recognized that fire extinguishers must receive periodic service, but too often a systematized maintenance routine is lacking, simply because adequate record systems are not kept. Here is a Periodic Inspection Record that will help keep accurate data on all units in the shop.

Measuring 17 x 11 in., this cardboard record is ruled off to show location, type, number, date purchased, and sec-

tions to list recharge and inspection dates. Space for 26 inspections of up to 38 extinguishers is provided. Write L24 on the accompanying postcard for a free copy of this handy chart.

L25. Association Guide

This new guide book for state association safety activities was promulgated by the ATA National Committee on Street and Highway Safety and is recommended as a complete guide for state associations in organizing and promoting the safety activities set forth in connection with the National Courtesy and Safety Campaign.

Keep posted by having this handy reference in your files. Write L25 on the postcard for a free copy.

L26. Fire Hazard Index

This new fire hazard index prepared for safety engineers and maintenance men promises valuable information on methods of fighting various kinds of fires. Providing in chart form the correct extinguisher or agent to be used for scores of fire hazards and materials, this guide should be in the hands of every fleetman. It can be used as an effective training aid to your fire fighting instruction. Write L26 on the free postcard for a copy.

L27. Engine Valves

Practical information on the characteristics of engine valves, their design, types, nomenclature and action is outlined in this 22-page booklet. From a maintenance standpoint common causes of valve troubles are listed. The author shows how timing, carburetion, detonation and preignition affect valve life.

Write L27 on the attached postcard for a free copy.

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For more information use the attached postcard.

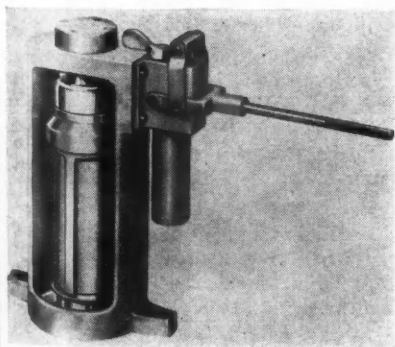
P149. Wiper Motor

The new Challenger Air-Push windshield wiper has four moving parts, consisting of the main piston and rack assembly, the gear and shaft assembly, and two double-acting pistons in the valve. There are no springs in the unit. The actuating shaft is cradled in two ball bearings to cut down friction drag and lengthen its life. A fibre gear and a steel rack are used.

The shaft can be changed without removing the wiper from its mounting; the degree of sweep can be changed by an adjustment. Features of this new motor are low consumption power ratio, positive holding of sweep setting, sturdy construction. Sprague Devices, Inc., Michigan City, Ind.

P150. Sleeve Puller

Hydraulic-operated, this sleeve machine removes worn sleeves and pushes in new sleeves. The push or pull is always in alignment with the cylinder walls. With a 50-lb force on the handle, a 20,000-lb pull on the sleeve results, which is sufficient to pull rusted



and corroded sleeves quickly and easily. Valve on pump housing controls direction of push or pull. Marvel Tool & Machine Co., St. Clair, Mich.

P151. Toolpost Grinder

The Utility Grinder, a dual-purpose, toolpost and bench grinder, is accurate to .0002 in. The 1/4 hp, 5000 rpm Utility Grinder fits lathes of 9-in. to 13-in. swing for external cylindrical grinding, and mounts on shaper, planer, or milling machine for surface grinding. When not needed for precision work it converts to bench use.

Features include heavy cast frame for rigid mount, minimum vibration, constant-speed, continuous-duty motor, permanent-mount spindle with precision pre-selected bearings, pre-loaded and grease-sealed for life, fast belt-tension adjustment, combination belt and wheel guard, T-bolt for lathe, vise and bench mounting.

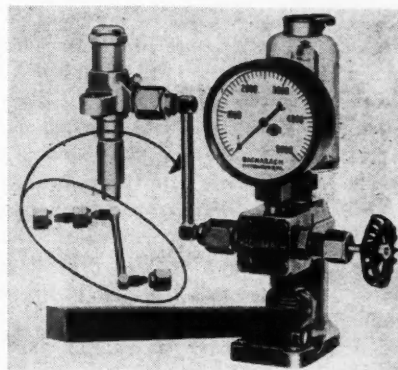
The Utility Grinder is available in both 110V and 220V, AC, 60 cycle. The Dumore Co., Racine, Wisc.

P152. Diesel Nozzle Tester

The redesigned nozzle tester provides a unique method of connecting the nozzles to the testers by means of a connector tube and interchangeable nuts. This results in a "universal" tester suitable for rapid and effective servicing of all injection nozzles.

One and the same connector tube serves as support for the nozzles of 235 different makes and types of diesel engines. Connection of the various sizes and types of nozzles to the connector tube is accomplished by the interchangeable nuts which have two-way threads. One end of the nuts has right-

hand threads matching the fuel inlet threads of the nozzle to be tested, and the other end has left-hand threads matching the threads on the connector



tube. Attachment of the nozzle merely requires starting right and left-hand threads at the same time and turning the nut clockwise until the connection is tight.

The connector tube is provided with a 60 deg swaged end which is the type of end most widely used on diesel fuel lines. However, an adapter stud is also supplied which readily adapts the connector tube to nozzles using Ermeto fittings. Bacharach Industrial Instrument Co., Pittsburgh, Pa.

P153. Brake Shoe Grinder

Model 2000 Safe-Arc brake shoe grinder handles shoes for drums from 9 in. to 16 in. It has built-in vacuum type dust collector to control flying

(TURN TO PAGE 84, PLEASE)

New Product Descriptions

Continued From Page 136

dust. The grinder matches lined shoes to the arc of standard or oversize drums for a full bearing fit and maximum brake lining life.

It is ball bearing equipped, and all running parts are life-time lubricated at the factory. The brake shoe clamping device handles all shoes, no adapters being necessary. The abrasive sleeves are quickly replaced. Ammco Tools, Inc., N. Chicago, Ill.

P154. Lubricators

The new "Challenger" chassis lubricators are individual cabinet-type, sturdily constructed, portable, with features for time-saving operating convenience.



All lubricators in the line dispense directly from original lubricant drums of up to 100-lb capacity. Overall dimensions: height, 43½ in.; diameter, 21⅞ in.

The chassis lubricator air-powered, with single cylinder, double-acting pumping unit delivers lubricant on both up and down strokes of piston. The pump operates with 36:1 piston ratio.

The gear lubricant has pumping unit operated by a convenient lever at hand-level. Meter registers up to 8 pt. and will not register when the lubricant is exhausted.

The portable waste oil drain uses an empty 100-lb lubricant drum. Funnel height is adjustable from 43½ in. to 63½ in. The Aro Equipment Corp., Bryan, Ohio.

P155. Extinguisher Holder

This new fire extinguisher holder, to be mounted on truck frames, is a heavy-gauge steel, rectangular shaped box. The door, hinged at the bottom, is locked by two inside lugs engaged with a locking bar and actuated by a long handle from the outside. Two rubber-covered steel ribs mounted vertically on the door, hold the extinguisher with a wedging action against two formed, rubber-cushioned brackets mounted at

the back. Closed, the box protects the extinguisher from dirt and weather. A tug of the handle disengages the locking bar. The box door opens, lowering the extinguisher with the door for easy removal. H. C. Fowle, 472 E. 143rd St., Cleveland, Ohio.

P156. Greasing Unit

Two models of a portable hand-operated greasing outfit contain two elements, a loading pump and a grease gun. The loading pump is mounted in a rigid steel cover which fits the top of any standard 25- or 35-lb size original lubricant bucket, replacing the original container cover. Three sturdy hook bolts hold the pump in a positive dirt-tight seal on the container. With a few strokes of the pump handle the gun is filled with lubricant through a loader valve on the pump and a loader fitting on the gun. The gun is then uncoupled and is ready for use.

When the gun is loaded, an automatic pressure release discharges the lubricant in the loading pump cylinder back into the grease container. Pressure of grease delivery at the fitting is controlled by the operator to fit the requirements of the bearing being serviced. Alemite Div., Stewart-Warner Corp., Chicago, Ill.

P157. Wheel Balancer

This new heavy-duty wheel balancer checks static and dynamic unbalance of complete wheel assemblies or component parts, including brake drums.

Built for heavy-duty service it handles all passenger car work. The wheel spins in a vertical position on a free-floating shaft as the amount of unbalance is recorded.

The balancer has an electrical indicating mechanism which gives position and amount of dynamic, static or dynamic-static unbalance. Indications are taken at a pre-determined speed from both sides of the wheel. Bear Mfg. Co., Rock Island, Ill.

P158. Crankshaft Polisher

A completely portable independent crankshaft polisher features the use of a self-aligning spring steel faced rubber back platen.

This enables the operator to remove grinder marks and designs from comparatively rough ground crankshafts. The platen also insures longer belt life.

The machine is of strong, light, long-life construction and the pulleys and motor armature are mounted on grease packed sealed bearings. It is operated by a ¾-hp motor with both a finger-tip control on the switch and on the spring load of the pulley, which controls the belt tension.

This machine may be used in conjunction with any equipment in which a crankshaft can be mounted and turned. It can also be adapted to the polishing of any other type of shaft, which requires a high finish. Tobin-Arp Mfg. Co., Minneapolis, Minn.

Late Product Flashes

The new Stanley "Spray Dried" car wash powder is sold in bulk and offered at the lowest price by the John T. Stanley Co., Inc., Mobo Div., New York, N. Y.

Wonderweld Washette, a colorful capsule containing enough highly concentrated synthetic detergent to wash a car, has been announced by the Miller Mfg. Co. of Camden, N. J.

A newly developed voltage tester, which affords full protection against exploding or serious arcing, is now available from the Elwood Co., Buffalo, N. Y.

A complete latex rubber waterproofing kit for sealing auto glass, body seams, ventilators, doors, trim and convertible tops, has been developed by New England Products, Inc., Cranston, R. I.

Combining the desirable characteristics of many special formulations into a single new insulating varnish, has been accomplished by the Irvington Varnish & Insulator Co., Irvington, N. J. This clear varnish permeates deep coil layers and bakes hard to form a solidly bonded winding.

Three new technical advances in the manufacture of metal-clad mercury switches and timer-relays, which adds to the life of these units, has been announced by Durakool, Inc., Elkhart, Ind.

Automotive Aids Corp. are now marketing a modified version of a coil type overload spring. By addition of a patented bar, the coil now does not contact the frame.

Plastilube, a new all-purpose lubricant which has a very high melting point, is the most recent development of the Warren Refining & Chemical Co. of Cleveland.

The Master Pneumatic Tool Co., Inc., Orwell, Ohio, has recently marketed two new models of short type, heavy-duty air-powered die grinders.

(TURN TO PAGE 136, PLEASE)

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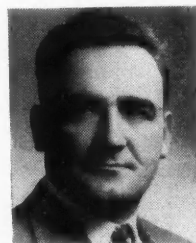
...HOWARD CORDAY, branch manager for the White Motor Co. in San Antonio, Tex.

...ROBERT E. LANDIS, E. E. LANDIS, and RICHARD D. LANDIS, ownership partners of the Landis Equipment Co., International motor truck dealer at Delphi, Ind.

...CHARLES A. EAVES, JR., named sales manager of special accounts and H. B. "CUBBY" CULBERTSON, named special representative in the sales department of the Mansfield Tire & Rubber Co.

...ROY W. JACOBS and ROY L. WARREN, newly elected vice presidents of the Fruehauf Trailer Co.

...HENRY J. McCULLOUGH, assistant manager of the Albany district office of the motor truck div. of the International Harvester Co.



...RAYMOND H. BLANCHARD, president of the Hood Rubber Co., Watertown, Mass.

...GERARD MARKEY, selected as the new district representative in New Jersey and southern New York state by the Toledo Steel Products Co.



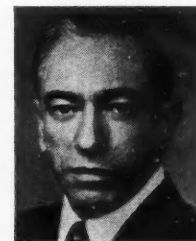
...EARL H. LEWIS, named branch manager for the White Motor Co. in Oklahoma City.

...A. G. ZUMBRUN, elected president of the Brunner Mfg. Co., Utica, N. Y., succeeds G. L. BRUNNER, JR., who will devote his full time to the Brunner Corp. (Canada) Ltd.

...F. A. MILLER, appointed Northeast regional manager and MAL JANIS, named New York district manager, by the Gould Storage Battery Corp., Trenton, N. J.

...EDWARD G. MEYERS, master mechanic; CHARLES A. RUSSEL, general superintendent; PAUL SHULER, assistant general superintendent; EDWARD F. LANNIGAN, assistant director of labor relations, of the Timken Roller Bearing Co. of Canton, Ohio.

...ROGER M. KYES, named general manager of the GMC Truck & Coach Div. of General Motors.



...HENRY SCHNEIDER, JR., appointed sales representative to cover the Detroit area for the Pyrene Mfg. Co.; RALPH KROHN, JR., and FREDERICK W. SCHNUR, named to cover Texas and Long Island areas.

(TURN TO PAGE 88, PLEASE)



THE SERVIS RECORDER *has a New Look*

—and a New Feature—

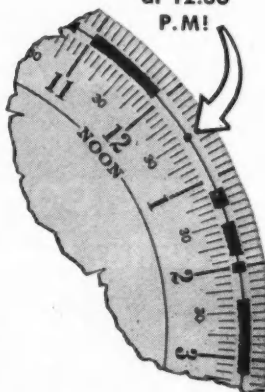
**— now it records
exactly when it was unlocked!**

WE have realized for some time how desirable this would be. Very frankly, we have puzzled our minds over the problem for *many years*... How to get a mark of this kind without running into other difficulties—without compelling the user to do complicated things, like sliding the chart *under* something, etc. . . . How to get the mark on the chart exactly where the unlocking took place—it might be the second day or the third day, for instance.

Now we have it! You put the chart in just as you always did. The Recorder takes care of the rest.

About the *New Look*. We think you'll like it, especially the latest *crinkle finish* that's so hard to mar or scratch. Write for the full story. THE SERVICE RECORDER CO., 1375 Euclid Ave., Cleveland 15, Ohio.

Recorder unlocked
at 12:30
P.M!



It's Unmistakable

The mark appears right on the face of the Chart, but it's also embossed on the back. It's unmistakable!

The New Servis Recorder

NOW BETTER THAN EVER



**The Mass Production
METHOD
of BUILDING
TRUCK BODIES**

**LS "FUNCTIONAL SKIN"
MEANS MASS PRODUCTION
FOR TAILORED BODIES**

**White Dove
MATTRESSES**

H. GOODMAN, INC.
CLEVELAND, O.

WT. 8540 CAP. 4500
TIRES 250" X 20" DIA.

**LS
FUNCTIONAL
SKIN**

**HAS GIANT
STRENGTH**

**The Men Who Know Truck
Bodies Manufacture
with Lindsay Structure**



In Cleveland—

Ask I. O. Weisblat,
The Carnegie Body Co., Cleveland,
Ohio, a leading body manufacturer
who specializes in the use of Lindsay
Structure for truck bodies.

**Anywhere in the U. S.—
Ask the Progressive Builders**

You can be sure to find near you
a body builder who uses Lindsay
Structure. There are over 200 qual-
ified body builders who are special-
ists in the use of Lindsay Structure
for truck bodies.

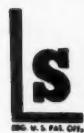
Large or small—a package delivery body or a trailer—
here is a versatile, wonder material that enables your body
manufacturer to tailor your truck body exactly to your
needs—by mass production methods.

LS "Functional Skin" construction means panels of light
sheet metal that are both skin and structure. It means
amazing strength and durability. It means easy accessibility
from the outside for fast, low-cost repairs.

A further advantage is provided in Lindsay Structure.
A great network—leading manufacturers in all parts of
the country are authorized LS Builders. They give imme-
diate, courteous, local service, fast repairs—anywhere.

Specify Lindsay Structure for your next truck bodies.
This investment in low-cost transportation pays dividends
for years and years. Write for name of your nearest body
manufacturer who uses LS.

LINDSAY



STRUCTURE

Lindsay Structure, Inc.
5000 West Dempster St., Skokie, Illinois

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending

Introducing

Continued from Page 86

...K. R. SHUPP, appointed Pyrene representative in North and South Carolina, Virginia and West Virginia.

...FRED B. CRONER, promoted to vice president of procurement of the Marmon-Herrington Co., Inc.

...WILLIAM K. HEADLEY, newly appointed executive vice president and general manager of Highway Safety Appliances, St. Paul, Minn.

...LEO B. GLASER, appointed manager of the newly formed Neg'ator Div. of the Hunter Spring Co., Lansdale, Pa.



...RAYMOND CROSS, appointed assistant district manager of the New York motor truck district for the International Harvester Co.

...ROLAND J. THOMAS, promoted to special representative in the Southern Div.; EDWIN E. KIRKPATRICK, promoted to territory representative in the Cleveland, Ohio area; ROBERT E. WALLACE and ANTHONY J. PETERS, employed as representatives in the Midwest and Central Div., respectively, by the Electric Auto-Lite Co.

...P. B. POSTLETHWAITE, elected chairman of the board of the Wagner Electric Corp. J. H. DEVOR succeeds Mr. Postlethwaite as president and H. N. FELTON becomes vice president in charge of sales.



...JOSEPH A. CAPPI, elected vice president of the Electric Auto-Lite Co.

...MURL L. SMITH, appointed sales manager of the Wavewash Car Washer Div. of the Phillips Pump & Tank Co., Cincinnati, Ohio.

...LOUIS F. WEYAND, vice president in charge of the Minnesota Mining & Mfg. Co.'s adhesives and coatings division, was elected to the firm's board of directors.

...E. G. SCHROEDER, sales manager of the Electric Products Co., Cleveland, Ohio.

...HOWARD B. SPEYER, promoted to vice president and T. A. HILL, promoted to secretary of the Champion Spark Plug Co.




...WALTER LISTERMAN, appointed assistant to the sales manager of the K-D Lamp Co.

...A. T. MORGAN, appointed territory manager in central Pennsylvania for the General Tire & Rubber Co. with headquarters in Harrisburg.

...GEORGE H. FREERS, promoted to vice president in charge of engineering of the Marmon-Herrington Co.



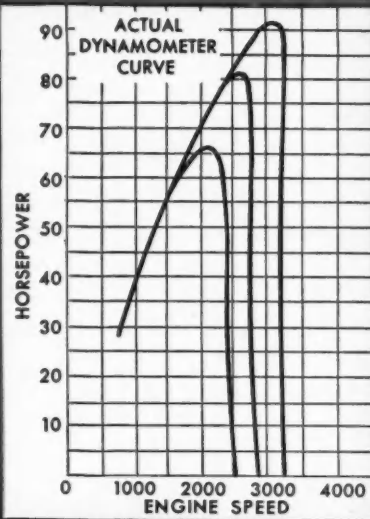
...WESLEY L. GILES, who has just returned from Alaska as Flexible Tubing Corp.'s representative at the U. S. Air Force winter maneuvers, has now become a technical representative. JACK F. CHAPIN, who has been appointed development engineer, in charge of product and process engineering.





HANDY GOVERNOR

Characteristics and Advantages

- ① No-load speed control.
- ② Close regulation.
- ③ Minimum loss of horsepower.
- ④ Wide speed range with one governor model.



NO OTHER
VELOCITY GOVERNOR
CAN GIVE YOU ALL
THESE ADVANTAGES

KING-SEELEY CORPORATION

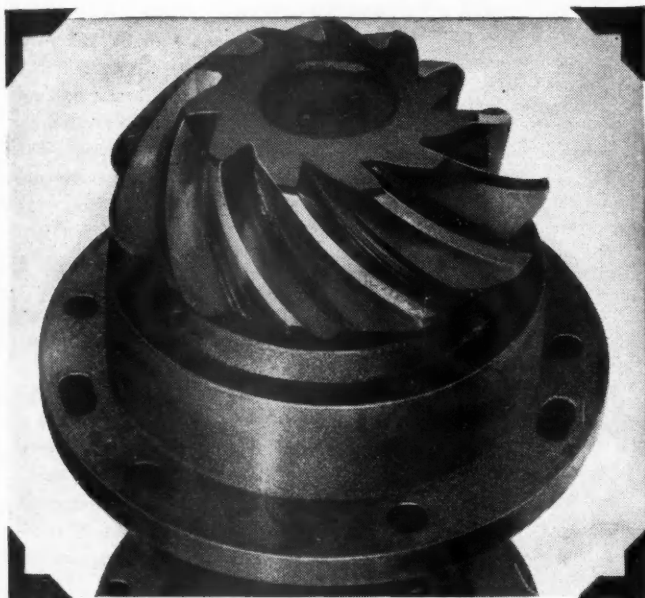
ANN ARBOR MICHIGAN

PLANTS IN
ANN ARBOR
GRAND RAPIDS
YPSILANTI

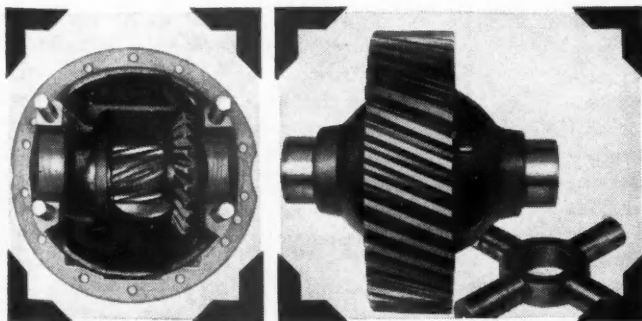
STANDARD ENGINEER'S REPORT

	DATA
LUBRICANT	RPM Multi-Service Gear Lubri.
UNIT	"Semi" Truck and Trailer
PART	Final drive-Timken U-200 Axle
CONDITIONS	Long distance freight haul-road elev. 0 to 7200 ft.-weather-20 to 125°F.
LOCATION	Los Angeles-Albuquerque N.M.
FIRM	Illinois-California Express Co., L.A.

Hypoid gears in good condition after 332,711 miles!



RPM MULTI-SERVICE GEAR LUBRICANT was used exclusively in the final drive from which this hypoid pinion was pulled — 459,981 miles since it was new and 332,711 miles since last overhaul. As photo above indicates, none of the gears in the unit was worn enough to warrant replacement.



ALL PARTS OF THE ASSEMBLY WERE PUT BACK IN SERVICE. Note their excellent condition despite 332,711 miles of highway work in extremes of load and weather conditions. The rear end was only taken down because the truck it was in was temporarily tied up in the shop for engine adjustment and service.

How RPM Multi-Service Gear Lubricant prevents wear in hypoids



- A. Contains a special compound that reacts chemically with metal and forms protective lubricating coating . . . resists rubbing action of hypoid gear teeth.
- B. Withstands extreme temperatures and pressures . . . highly oxidation resistant — prevents excessive deposit formation.
- C. Provides lubricant for integral bearings and other parts. Will not separate. Inhibitors resist rusting and stop foaming in gear cases.

REMARKS: This final drive was in a transport unit hauling average gross loads of 68,000 pounds between Los Angeles and Albuquerque, New Mexico. The route is through desert and mountains from below sea level to 7200 feet. Some grades rise 2000 feet in 10 miles. Weather temperatures range from sub-zero to 125° F. in this area.

The final drive was in service from 13,000 to 14,000 miles per month. The RPM Multi-Service Gear Lubricant was drained and a new fill put in about every 35,000 miles. RPM Multi-Service Gear Lubricant provides longer gear life in all hypoid sets, truck, passenger cars or other installations. It comes in several grades to meet all conditions.



FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

Trademark "RPM" Reg. U. S. Pat. Off.

STANDARD OIL COMPANY OF CALIFORNIA • San Francisco
THE CALIFORNIA OIL COMPANY • Barber, N.J., Chicago, New Orleans

STANDARD OIL COMPANY OF TEXAS • El Paso, Texas
THE CALIFORNIA COMPANY • Denver, Colorado

Tire Prices Favorable

Continued from Page 72

Crude rubber, for example, has increased nearly 30 per cent since last August, or an average of $4\frac{1}{2}$ cents per pound. In the popular 8.25-20 10-ply size, about $33\frac{1}{2}$ pounds of natural rubber is used, running the cost of the rubber alone up \$1.34 a tire.

Another big factor in costs is the general trend to pensions which is increasing labor costs substantially. One of the largest companies estimates its

pension program will be equivalent to one-third of the total profit made in 1949. Fabrics and other items used in manufacturing also have gone up in price. In view of these facts, it is hard to disagree with tire manufacturers that higher prices are justified. Last year earnings of the ten leading tire companies averaged only 3 cents per dollar of sales, an unusually low figure when compared with other industries.

Actually, the margin on truck tires is even lower than that since the figures include earnings on other industrial and chemical products where the margin is greater. The real problem in the tire industry is that capacity today for replacement tires is about double the market potential, and every company will be striving to get volume sales in order to hold down overhead costs. That's why it still is very dubious that prices to buyers will go up as much as list prices do or even whether they will increase at all under the stress of competition.

Tire Structure and Materials

TO GET BACK to quality of current tires, the industry says that tires today are from 25 to 40 per cent better than those built prewar. All large sizes are 100 per cent natural rubber, with rayon and nylon contributing to the increase in quality. The biggest problem now facing tire development engineers is tread wear rather than carcass strength. There has been a definite trend toward extra tread tires in operations where conditions of speed and load permit their use. In some cases rayon cord is used, and where severe conditions of speed and load exist, nylon cords are employed. An interesting point here is that whereas a year ago the tire industry was very bullish on nylon to replace rayon eventually, that idea has been tempered somewhat. The reason is one of economic rather than any backing off on nylon as a desirable material. Today nylon costs about $3\frac{1}{2}$ times as much as rayon and there is little indication that it is going to come down soon. Because of its tendency to "grow" in the tire, nylon is used with the same number of plies which results in a tire $2\frac{1}{2}$ times stronger than rayon but at a premium in cost of 35 per cent or more. In other words, to build a nylon tire successfully it is necessary to use the same number of plies as with rayon, resulting in a tire actually stronger than is needed for most conditions, but at a high premium. Some companies say that the premium now is uneconomical for them and may have to be increased. Consequently, they are looking for nylon cord tires to be used only under the most unfavorable operating conditions where they pay off because of their tremendously greater carcass strength. Another factor is that strict enforcement of weight and speed laws would keep carcass strength requirements well within the range of the rayon tire.

As a result of the greater strength
(TURN TO PAGE 92, PLEASE)

PUT Zenith Iⁿstruction P^rogram into YOUR PROFIT PLANS!

A highly trained carburetor expert will get your vehicles on the road with a minimum of lost time—thus cutting down on the profit loss of costly schedule interruptions. The purpose of the Zenith* Instruction Program is to acquaint your men with the techniques of faster, better work in heavy-duty carburetor repair.

Conducted by factory experts, this highly successful course is short and thorough—and, combined with the easy-to-work-from Package Repair Kit makes carburetor service quick and profitable. Contact your Zenith distributor for details, or write the factory direct.

*REG. U. S. PAT. OFF.



ZENITH CARBURETOR
696 HART AVENUE • DETROIT 14, MICHIGAN



A New Name — A New Package

FoMoCo



Ford fleet operators—
meet FoMoCo—the new registered
trademark for Genuine Ford Parts.

A name derived from the name Ford Motor
Company. A name that stands for
all the best . . . for top quality,
precision manufacturing, long life.

And here's the new FoMoCo package

—each size and shape scientifically
designed and labeled to give
maximum protection of contents, and
greater ease of storage and identification.

These new FoMoCo packages are gradually
replacing the former Genuine Ford Parts
packages. During the change-over, both will be
available, containing the same Genuine Ford Parts
that are made right to fit right and last longer
. . . the parts that are *right* for Fords.

FORD Division of FORD MOTOR COMPANY

COMMERCIAL CAR JOURNAL, May, 1950

Tire Prices Favorable

Continued from Page 90

of both rayon and nylon tires, recapping is continuing to show a steady increase. Fleet operators have found that it is possible to get considerably longer life out of tires than was possible before the war because of the greater carcass strength and the excellent material now available for recapping, and also because of the advances in technique in applying the camelback.

The status of wire cords appears to

be no further advanced than it was a year ago. These tires have the advantage of tremendous carcass strength, long recapping life, and cool running, but the problem of wire breakage because of flexing still has not been licked. Also, the tires must be run under much higher inflations which is harder on the vehicle and driver. Research is still continuing, but there is nothing spectacular indicated on wire cords at present. Currently, the tires sell at a 100 per cent premium and even so the companies lose money on them.



**Have you heard
about OAKITE'S great
new metal cleaner?**

Oakite Compound No. 33 is a new solvent-acid metal-cleaner that combines three big jobs into one:

1. It removes rust *at the same time that*
2. It removes paint *at the same time that*
3. It prepares the metal for painting

Oakite Compound No. 33 is great for removing rust, heat scale, other oxides, carbon smut, welding fluxes, oil and grease—all in one operation—and it leaves steel, cast iron and aluminum in excellent condition for painting.

After stripping paint from an entire surface or after sanding off a small area, there is nothing like swabbing down with Oakite Compound No. 33 to prepare for a good repaint job.

Oakite Compound No. 33 also is a good tank material for soak-cleaning carburetors, clutch assemblies, generators, springs, etc.

FREE For more information about Oakite Compound No. 33, drop a line to Oakite Products, Inc., 26D Thames St., New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. & Canada

OAKITE

SPECIALIZED INDUSTRIAL CLEANING
MATERIALS • METHODS • SERVICE

TRADE MARK REG. U. S. PAT. OFF.

The only new development in possible tire cord materials is just a hint that one of the large textile producers has come up with a new unnamed material which shows indication of being even superior to nylon in strength and toughness. It has not yet been tested for truck tires nor is it known whether it will be put into production for a long time yet.

The problem of tread wear is being attacked through use of extra thickness treads where possible and also experimentally with synthetic "cold" rubber. Apparently there will be nothing startling very soon in the latter direction, but one company reports that it has had a set of cold rubber treads operating experimentally with the most promising results. A great deal of development work remains to be done, however. The industry still believes that eventually it will come up with a man-made rubber superior in most or all respects to the natural product. It may take a long time, however. All synthetics developed up to now still fall down badly in respect to heat buildup so that for the foreseeable future natural rubber will be used in larger truck tires.

END

Please resume your reading on P. 74

Trucks Pay 65 Pct Tolls on Pennsylvania Turnpike

The Pennsylvania Turnpike Commission reported net profits of \$4,250,166 for the 12-month period ending Nov. 30, 1949.

At the same time, the commission reported that 3,848,788 vehicles used the turnpike's 160-mile toll road from Irwin to Middlesex during the 1949 calendar year.

Tolls were reported as \$7,049,543, an increase of 19.3 per cent over the previous year.

While 77 per cent of the turnpike's total traffic was reported as passenger cars, this classification of traffic paid only 35 per cent of the tolls, the commission reported. The remaining 65 per cent of tolls came from trucks and buses. Truck traffic was reported as 35 per cent of the total and buses as 1 per cent.

Turnpike officials expect a 100-mile Philadelphia extension to be open for Labor Day traffic. Philadelphia extension tolls have been estimated at \$4,000,000 next year, increasing to a peak of \$6,000,000 after 1961.

Ode to Sally

Here lie the bones
Of Sally Cleek
Her will was strong,
But her won't was weak.



Spicer Universal Joints—

BUILT LIKE AN OX

Not an ounce of excess weight

Built for work . . . steady, safe, dependable. Big and broad in the shoulders, fortified by sinews of steel that handle heavy loads with ease and efficiency. Rigidity — *the essence of accuracy* — is assured by Spicer one-piece solid yoke construction. Spicer "built-like-an-ox" construction has patented features that will serve your equipment better . . . on the boulevard or in the backwoods. Spicer Universal Joints are built with a reputation to maintain . . . a 46-year service record unequalled in the industry. With this prestige we have an obligation to fulfill . . . in engineering, manufacturing and service of the highest order.

SPICER MANUFACTURING • Division of Dana Corporation
 TRANSMISSIONS • PASSENGER CAR AXLES • PROPELLER SHAFTS
 UNIVERSAL JOINTS • FORGINGS • TORQUE CONVERTERS
 RAILWAY GENERATOR DRIVES • SPICER "BROWN-LIPE" GEAR BOXES

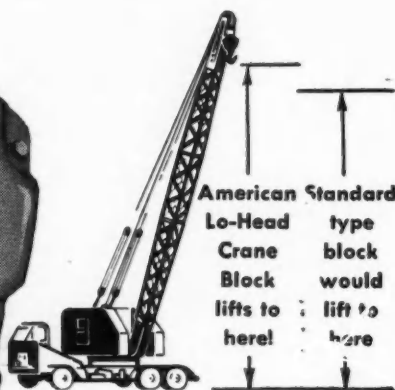


TOLEDO 1, OHIO
 PARISH FRAMES
 STAMPINGS
 CLUTCHES

RAISE YOUR LOAD

TWO FEET HIGHER

WITH THE NEW...



AMERICAN Lo-Head CRANE BLOCK

*P.S. It only needs
lubrication once every
two thousand hours!*

GETS YOU OUT OF TIGHT SPOTS...

because it's 1½ to 2 feet shorter than ordinary crane blocks. Often saves adding a boom section. Anti-friction bearings throughout. Sizes 10 to 50 tons; one, two or three sheaves, 18" to 24" diameter.

MAIL THE COUPON!

American Hoist

52 & Derrick Company 5302
St Paul 1, Minnesota

● Please send free catalog on AMERICAN
LO-HEAD CRANE BLOCK.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Detroit Dispatch

Continued from Page 31

have taken more direct protest action so far as their own purchasing departments are concerned. (See April CCJ, p. 256.)

GMC Shake Up

Keep an eye on GMC during the next year. A quiet but thorough reorganization of the entire organization has been underway for several months, including appointment of Roger M. Kyes as general manager. He previously was assistant to the general manager and has a reputation as an aggressive administrator. Since he joined GMC last Fall, he has shaken up and revitalized the organization with results that already are beginning to show. During March, the division had its largest truck production month in history with 11,161 units, or 1767 more than the previous record set in August, 1948. Look for some overhauling of sales techniques and aggressive and hard hitting sales campaigns.

Michigan Truckers Sue Union

Michigan Trucking Labor Div., of M.T.A., representing 92 trucking firms, is suing the teamsters union (AFL) for damages "not to exceed one million dollars" in Federal court at Detroit. The suit charges breach of contract and asks the court to order the central states conference of teamsters to live up to the terms of a contract signed last November and scheduled to run until Nov. 31, 1952. The suit charges that the president of one of the locals at Cleveland is demanding a new contract covering operations of the firms in Ohio.

Ford Fleet Service Program

Ford is setting up a comprehensive fleet service program on a nation-wide basis. The organization is designed to handle complaints, to make periodic contact with truck fleets in connection with the various Ford district fleet service departments, to help set up preventive maintenance programs, to cooperate with operators to bring their operating costs in line with those of other fleets in the same business, and to conduct schools for maintenance and repair on Ford products and give new model information. As part of the program, Ford is attempting to devise a cost system by vocational groups.

Federal Models Coming

Federal Motor Truck Co. will offer new models in its medium heavy-duty line next month. Details are still confidential. Five of the new models currently are undergoing rigorous tests.

END

Please resume your reading on P. 35

Wagner Air Brakes

THE CHOICE OF FLEET OPERATORS



The statements at right—by men who are responsible for the economical operation of heavy-duty vehicles, are just a few examples of what hundreds of cost-conscious operators have said about Wagner Air Brakes.

In the trucking industry everywhere—on all types of heavy-duty vehicles, Wagner Air Brakes are establishing outstanding economy records for brake performance under the most severe operating conditions. Because of their proven reliability, Wagner Air Brakes have become the choice of fleet operators.

Wagner Air Brakes are the product of more than twenty years of brake engineering experience—experience gained in the manufacture of hydraulic brakes and brake parts for the automotive industry. This outstanding brake knowledge is your assurance that when you install Wagner Air Brakes you will reduce brake maintenance costs and increase your payload profits.

SEND FOR THIS BULLETIN

Everyone responsible for the economical operation of heavy-duty vehicles should have Wagner Bulletin KU-50. A request will bring your copy by return mail.



Wagner Electric Corporation

6470 Plymouth Ave., St. Louis 14, Mo., U. S. A.

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID...NoRel...
CoMoX BRAKE LINING...AIR BRAKES...TACHOGRAPHS...
ELECTRIC MOTORS...TRANSFORMERS...INDUSTRIAL BRAKES

"FOR FREEDOM FROM
MAINTENANCE...
FOR ALL AROUND
DEPENDABILITY...
WAGNER AIR BRAKES
ARE OUR BEST BUY."



B. E. Garner, Maintenance Supt.
WESTERN TRUCKING COMPANY

"ONE OF THE FEATURES
THAT SOLD US
WAGNER AIR BRAKES
IS THE ROTARY
AIR COMPRESSOR."



F. Harrison, Garage Foreman
NIGHTHAWK FREIGHT SERVICE

"OUR FLEET OF HEAVY-
DUTY ASPHALT
HAULERS REALLY
GETS A GOING
OVER— WE MADE THE
RIGHT CHOICE WHEN WE
SELECTED WAGNER AIR BRAKES."



F. L. Hunter, Plant Superintendent
MISSOURI PETROLEUM PRODUCTS CO.



L-P Gas Gets the Fleet OK

Continued from Page 64

and heads for practical conversion to high compression.

When special pistons are available from the manufacturer, they should be used in place of cutting down heads. Sometimes high compression heads are also available from the maker. If cylinder heads are cut down, the operator should be sure there is sufficient metal in them to withstand high pressures without stretching the metal and

so blow head gaskets. It is generally recognized that most fleet shops are not equipped to cut down heads, and if machine shops do the work, a careful check should be made to determine if the proper amount is removed and if the head is square.

Fuel tanks must be replaced with special units built for at least 250 lb pressure per square inch. The carburetor is replaced with a special gas

mixer, and a heat exchanger is installed between the mixer and the fuel tank to vaporize the fuel. Pressure regulators are added to control its pressure to the intake manifold.

Heat can be removed from the manifold by cutting away the sections which conduct exhaust gas around the intake manifold and plugging these passages. Special manifolds are available, as are fuel system conversion kits and special storage tanks for vehicles from a long list of suppliers. It is estimated that these fuel changes can be made in one eight-hour day. Costs will vary with the size of the tanks, availability of special brackets, and, of course, the speed of the individual doing the conversion. For tanks, carburetor, lines and fittings, conversion costs should run around \$300-\$350.

It should be noted that marketers of LP fuel make available storage tanks and dispensing equipment of all types for lease or sale. Many of them will actually convert the gasoline engine to LP gas operation as a service to the fleetmen.

Field conversions should be supervised carefully, however, if the operator is to enjoy maximum horsepower and efficiency. For example, some engines may require colder type spark plugs. Spark timing will vary with the particular engine. In some cases, no re-adjustment is necessary, while other installations will require an advance up to 5 deg over standard gasoline setting. Since there is no spark knock present with LP gas, it will be difficult to determine proper setting. It is recommended that the spark be left at manufacturer's specifications, then advanced in steps of two degrees until maximum performance is reached.

Adjustment of the carburetor also requires more care than the gasoline unit. Since butane-propane has a much narrower range of combustible limits volumetric wise, the best performance point is more difficult to locate. However, once secured, there is little reason why this adjustment would ever change. Mixture ratio should be adjusted to 13.8 to 14.2 to 1 on an analyzer for most efficient power and economy.

Fuel Costs

FUEL COSTS represent a direct saving to the operator of LP gas engines. Some leading refiners are said to have indicated a willingness to supply propane at approximately 2½ cents per gallon at the refinery on long-term contracts. Delivered fuel costs before taxes average from 25 to 50 per cent less than gasoline and from 10 to 40 per cent less than diesel fuel in mid-continent sections of the country, ac-

(TURN TO PAGE 98, PLEASE)



THEY'RE READY TO SAVE YOU MONEY AND TROUBLE!

YOU'LL RECOGNIZE the good quality and design that are built into Foco Flar when you actually examine the FF3 set (as shown above).

In the open position, Foco Flar is stable, secure, adaptable to all road conditions. When stored, Foco Flar folds into a neat package of 3 units in a sturdy mounting bracket. The three nest snugly, thereby protecting lenses from dirt. They stay put securely and without rattle—instantly available for use. Can be locked if desired.

Reflectors are made by Anthes of DuPont Lucite. Base is red baked enamel. Storage bracket, lens frame, and supports are cadmium plated, with brass pin. All are included to provide an effective, long lasting safety reflector—and at a satisfactory low price.

Ask your jobber for Foco Flar—or write to us for the nearest source of supply.

ANTHES FORCE OILER CO.

FORT MADISON, IOWA

Anthes

THE FIRST LINE OF SAFETY

... and proud to serve the safest drivers on the road!



LIGHTS



REFLECTORS



FLAGS FUSES



FOCO FLAR



EXTIN GUISHERS



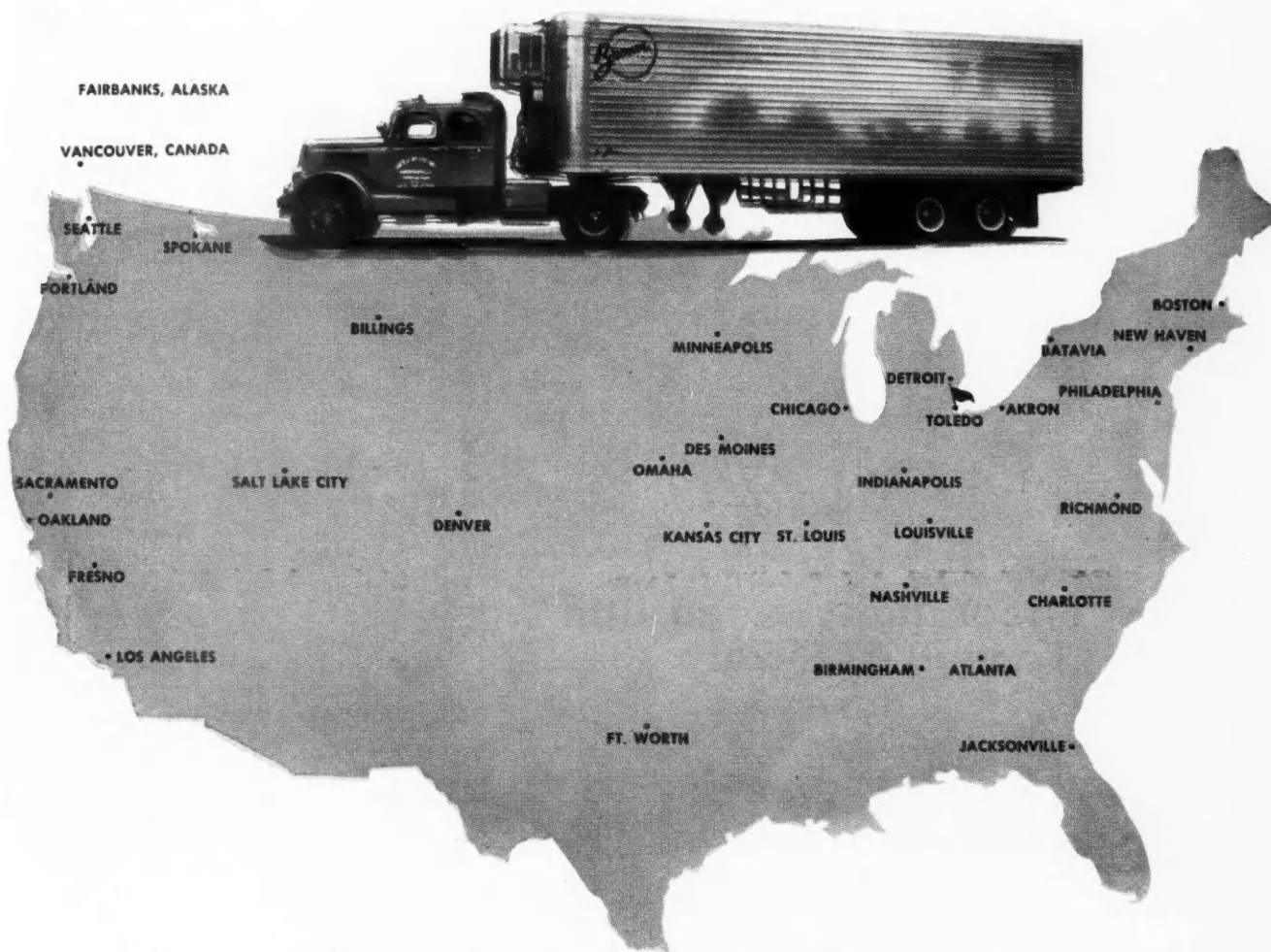
TRUCKFLAR



WINDMILLS

YOU'RE IN THIS PICTURE

**NO MATTER WHERE YOU OPERATE
THERE'S A BROWN DISTRIBUTOR TO SERVE YOU**



From Boston to Los Angeles, From Seattle to Jacksonville

Akron, Ohio — Triangle Equipment Company
Atlanta, Ga. — Carley Trailer & Equipment Co.
Batavia, N. Y. — Boyles Motor Sales
Billings, Montana — Montana Trailer Sales & Equip. Co.
Birmingham, Alabama — Aluminum Trailer Sales Co.
Boston, Mass. — Walsh Body & Trailer Company
Charlotte, N. C. — Brown-Clark Equipment Company
Chicago, Illinois — Voltz Brothers, Inc.
Denver, Colorado — Brown Trailers, Inc.
Des Moines, Iowa — Hawkeye Truck Equipment Co.
Detroit, Michigan — Acme Trailer Company
Fairbanks, Alaska — Wells Alaska Motors

Fort Worth, Texas — Ashton-Richards Company
Fresno, California — Stan-Wall Manufacturing Company
Indianapolis, Ind. — S. E. Props Company
Jacksonville, Fla. — Southeast Wheel & Rim Company
Kansas City, Mo. — Ashton-Richards Company
Los Angeles, Calif. — Pike Trailers, Inc.
Louisville, Kentucky — Dealers Truck Equipment Co.
Minneapolis, Minn. — Charles Olson & Sons, Inc.
Nashville, Tennessee — Mack Sales & Service
New Haven, Conn. — Connecticut Wheel & Rim Co.
Oakland, California — Earl Sherman & Company
Omaha, Nebraska — Omaha Body & Equipment Co.

Philadelphia, Pa. — Atlas Body Corporation
Portland, Oregon — Douglas Hood Company
Richmond, Virginia — Brown-Clark Equipment Company
Sacramento, Calif. — Fifth Street Truck Terminal
St. Louis, Missouri — Ashton-Richards Company
Salt Lake City, Utah — Commercial Equipment Company
Seattle, Wash. — Transport Trailer & Equipment Co.
Spokane, Wash. — Leland Trailer Company
Toledo, Ohio — Tittsworth Trailer Sales & Service
Vancouver, B. C. — Columbia Trailer Company, Ltd.

In addition to the distributor locations shown on the map, there are dealers located in other principal cities to serve you.

BROWN sales-and-service is nationwide. Brown sales-and-service is competent to serve you. Locations throughout the nation — combined with knowledge and facilities — enable independent Brown distributors to give you convenient, able service. Independent Brown distributors offer you a combination of lightweight more-pay freight aluminum trailers — backed by service that reduces down time — keeps them rolling. This combination of independent, able distributors, and Brown Trailers — the only lightweight aluminum trailer backed by a quarter-century of performance — has brought new profit opportunities to operators from coast to coast. Remember — "The scale tells the tale" — Brown's business has been built on bigger payloads and profits for its customers. It will pay you to have an independent Brown distributor put your trailers on the scale. See for yourself how lightweight Browns can carry thousands of pounds of extra payload that spell profits to you.

BROWN TRAILERS, INC. Spokane, Wash. • Toledo, Ohio



"The scale tells the tale"

L-P Gas Gets OK

Continued from Page 96

cording to some reports. Differentials in certain locations are due to transportation costs.

Specific relative prices to the user, including all taxes, have been obtained from three sections of the country:

	Cali- fornia	Illinois	South Dakota
Gasoline . . .	16.85	15.9	
Diesel fuel . .	16.04	13.3	
LP gas	12.00	10.9	11.0

Another refiner quotes Group III tank car prices (prices in and around the oil field areas) for LP gas at 2½ cents per gallon, as compared with approximately 9½ cents for gasoline. Allowing one cent per gallon for additional storage and handling costs, there is a differential of 6 cents per gallon in favor of LP gas, according to this source. However, due to the lower thermal value of LP gas, savings are not so high over diesel engines with their notably high efficiency. Fuel consumption, while comparable to gasoline engines, will be approximately 1½

times that of the diesel doing the same work. Diesel fuel sells for approximately 7½ cents per gallon at the oil fields. Furthermore it is not taxed. Thus to the Group III price of LP gas must be added the additional one cent per gallon for handling and storing, and the one and one half cents per gallon Federal excise tax. This puts the price of LP gas at 5 cents per gallon, compared to 7½ cents for diesel fuel. But since the diesel will operate more efficiently, 7½ cents worth of diesel fuel will do the same amount of work as 7½ cents worth of LP gas, other things being equal.

Other authorities suggest that operating fuel costs will fall between that of gasoline and that of diesel fuel. The minimum savings, they say, over gasoline should be 20 per cent in fuel cost. Oil companies as a rule do not like to emphasize the lower cost of LP gas as a dominant factor in lauding this type of fuel. They insist that savings in maintenance and longer-lived engines are sufficient benefits to justify the use of liquefied petroleum gas.

About Fire Hazards

IT IS emphasized by fuel suppliers and manufacturers alike that LP gas need not be any more fire hazardous than gasoline. In fact, they say that in many cases it is safer. In LP gas installations more sturdy tanks of 3/16 to ¼-in. steel capable of withstanding 250 lb pressure per sq. in. with a safety factor of four are required by Underwriters Safety filling devices, excess flow valves, safety valves, etc, must be approved. Thus tanks will withstand considerably more impact, and shut off valves will stop the escape of gas when lines break. All points in fuel lines are welded and flanged together then threaded. Lines are rigidly anchored and encased in a loom, thus reducing tendency toward damage.

In the event of fire and broken tanks, LP gas will diffuse into the atmosphere while gasoline spreads over the surrounding area. Explosion hazards are present with either type fuel, of course, but on the whole propane properly installed offers no additional problems. For these reasons oil companies consider the hazards in case of collisions to be less with LP gas than with gasoline. It should be emphasized here that Pamphlet 58 of the National Board of Fire Underwriters covers the entire set of rules for handling and storage, and if these are adhered to there is absolutely no more danger from using LP gas than there is in gasoline.

The insurance of vehicles operating on volatile fuels is an index of the relative hazard. Because of the predomi-

(TURN TO PAGE 100, PLEASE)



The Triborough Bridge and
Tunnel Authority
Chose

THE BIEDERMAN TRUCK

because of its

- *Sturdy Construction*
- *Dependable Power*
- *Capacity for Big Loads*
- *Advanced Design*
- *Accessibility of All Parts*

FLEET OPERATORS: Let us send you complete specifications of the Biederman National Standard Model. Compare them with any other truck on the market and you will then understand why the Triborough Bridge and Tunnel Authority chose Biederman trucks for their reliability.

For complete information write, wire or phone.

BIEDERMAN MOTORS CORPORATION
CINCINNATI, OHIO

RECONDITION YOUR ENGINE

FOR MAXIMUM
POWER

FOR **LOWEST**
OPERATING COST

REPLACE WITH ZOLLNER

THE "ENGINEER APPROVED" PISTON

Expertly engineered pistons make a big difference in engine performance — and operating cost. That's why it's always best to insist on Zollner "Engineer Approved" Pistons when reconditioning your engines. The big majority of engine manufacturers work hand-in-hand with Zollner engineers in the development of pistons best suited to heavy-duty use. Over 70% of all makes of trucks and buses are Zollner equipped — and have been for years. Only when you use Zollners can you be sure that your pistons are expertly designed and precision-made to the individual engine specification for utmost performance and economy of operation.



*Used and Recommended by over 70%
of all Truck and Bus Manufacturers.*

ZOLLNER

HEAVY DUTY PISTON EQUIPMENT

ZOLLNER MACHINE WORKS

FORT WAYNE, INDIANA

L-P Gas Gets OK

Continued from Page 98

nantly greater use of gasoline all automotive rates are based on the assumption that this fuel will be used. A survey of local underwriters (in the Los Angeles area) indicates that the manual on which all rates are based does not discriminate against LP gas as amotor fuel. The consensus of eight inquiries was that there would be no discrimination against a fleet operation that was properly engineered, and that in actual

practice, rates for such an operation would be based eventually on experience.

Storage and Handling

BULK STORAGE, again, is no more hazardous than gasoline, but other problems present themselves. Since the fuel is stored in pressure equipment, either above or below ground level, the design of storage and dispensing equipment is rigidly controlled by laws and specifications drawn up by local State and Federal authorities. If the equipment is of standard design and reasonable precautions are taken

against leaks, storage and handling is safer than gasoline. Some cities, however, prohibit storage within city limits, and New York City does not permit it to be transported through the tunnels leading to the city.

Refiners estimate that the cost of building storage tanks will run about 50 to 75 cents per gallon of storage capacity.

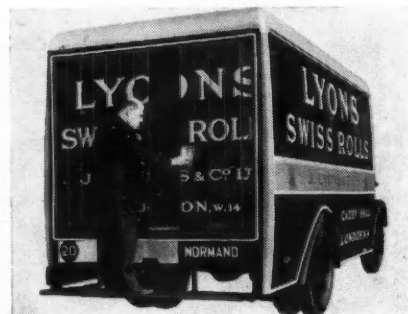
Handling and storage costs are estimated at approximately one cent per gallon at present. Due to special transport equipment, large quantities must be handled to keep down costs, and up until the present, demand has not required large shipments. This may be one reason for the relative small use of LP gas up to the present. When quantity shipments are possible through extended usage, it is expected that transportation costs can be reduced materially.

Distribution Problems

FROM the foregoing one might infer that LP gas operation is here to challenge both gasoline and diesel fuel. That is not the case. Presently there are several problems facing the potential LP gas user. Availability appears to be limited to certain sections of the country as of today. The product is available from approximately 7000 bulk storage plants scattered through the nation, and fuel suppliers are even now setting up distribution centers in various key cities. By planning fuel purchases, locating supplies enroute, transports have made their way from Texas as far east as New York City. Frequently LP gas operated trucks come into Chester, Pa., from the Southwest and apparently have little trouble in refueling. Cleveland, Toledo, Chicago, Pittsburgh, Philadelphia, Harrisburg, and many other cities are well-spersed with fueling stations, but they are not

(TURN TO PAGE 102, PLEASE)

Rolling Door Disappears



Sliding into a recess formed between the inner and outer panels of the body, this door consists of hinged aluminum vertical slats carried and guided by runners. Mr. Douglas Gluckstein, chief executive of Normand, Ltd., manufacturers of the door, will arrive soon in the U. S. with a model for demonstration



The One and Only

Thermoid Custom-Built Brake Lining is the one and only brake lining carrying the nationally famous Pittsburgh Testing Laboratory Seal—which certifies the lining in the package is absolutely correct for the brakes with which the car or truck is equipped. Thermoid makes a complete line of specially engineered linings for every car, bus and truck application. For maximum safety, less maintenance, and low operating costs, specify *Thermoid* brake lining—recognized everywhere as "the safest thing on wheels."



Thermoid

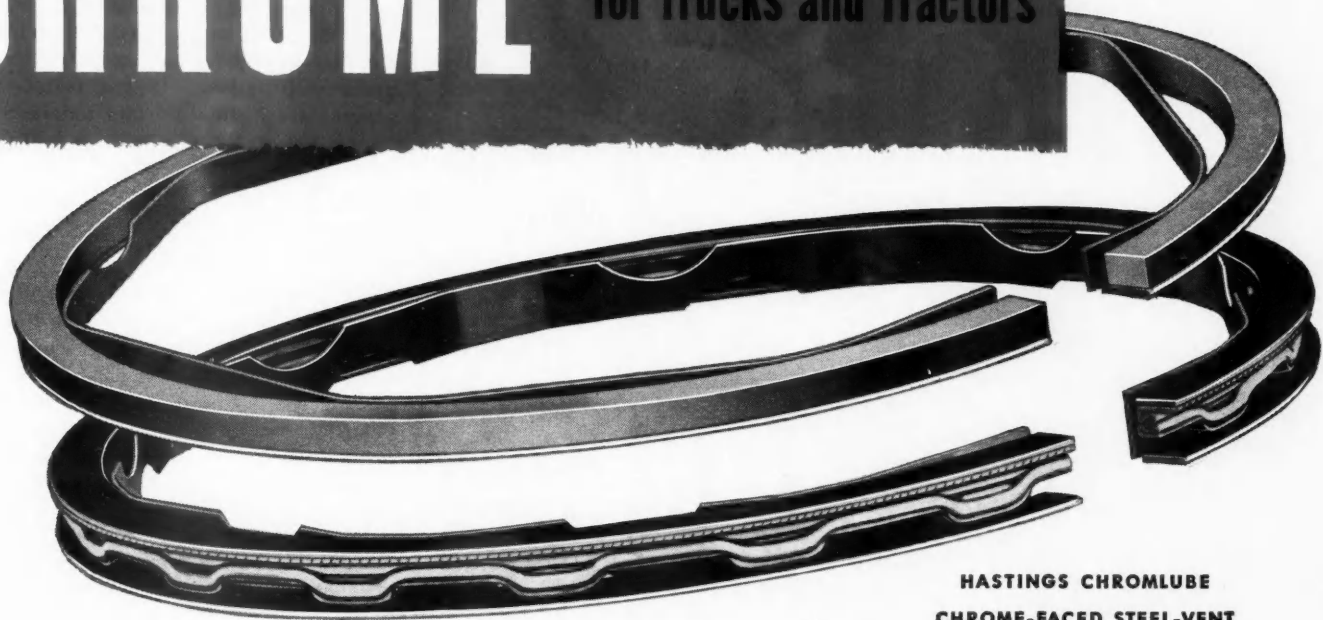
Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Clutch Facings • Car Mats • Thermoid Precision Process Equipment.

Thermoid Company

Trenton, N. J.

CHROME

...on the Oil Control Rings
for Trucks and Tractors

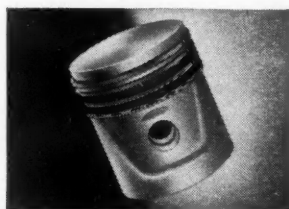


HASTINGS CHROMLUBE
CHROME-FACED STEEL-VENT

● Hastings heavy-duty Chrome Sets, with Chrome-Faced Steel-Vent and Chromlube oil rings, are outperforming all previously known ring combinations. More than four years of field testing have confirmed Hastings chrome-engineering. Thousands of installations, under severest operating conditions, have proved Hastings Chrome Sets give greater resistance to scuffing, less cylinder wall drag, and longer life.

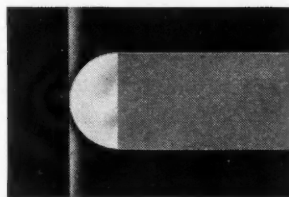
Hastings Chrome Sets are available now for nearly all trucks and tractors. Make your next re-ring a Hastings Chrome ring job—you'll stop oil-pumping, check cylinder wear, restore engine performance for thousands of extra miles.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN
Hastings Ltd., Toronto



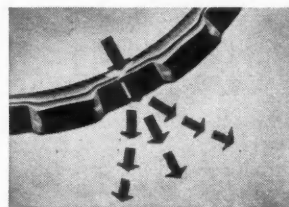
Chrome where it belongs.

It's the oil rings that usually determine the life of any set of piston rings. So Hastings uses chrome where it does the most good—on the oil control rings—for trucks and tractors.



Hairline Contact.

The chrome-faced edge of Hastings steel segments is not flat, but round—giving a fine, hairline contact with cylinder wall—helping the ring seat properly with greatly reduced cylinder wall drag.



Oil always under control.

Hastings Steel-Vent is a "wet" ring. It really controls oil. It can't clog. Oil flows freely through the spacer's wide vent. "Breather" action breaks up and flushes away clogging particles of carbon and gum.



HASTINGS

**STEEL-VENT
PISTON RINGS**

CHROME-FACED FOR HEAVY-DUTY SERVICE



ERIE WHEELS...

Jerry-built boom town... the permanency of the metropolis... the forest primeval becomes a city... miracles of construction which depend on wheels to move great trees to the market place... Erie Wheels have won the accolade of astute transport men the world over... Light tubular spokes... tough, durable, resilient Malleable Iron... Erie Wheels pledge the safe-conduct of precious cargoes from Pole to Pole, from the Forest Primeval to the Champs Elysées and Broadway.

You Can Specify...

Erie Wheels

ERIE MALLEABLE IRON COMPANY

Automotive Wheel Division
ERIE • PA.



250

L-P Gas Gets OK

Continued from Page 100

adequate as yet to fill needs without some degree of inconvenience. There is considerable production of LP gas in the many refineries scattered along the East Coast, and indications point to the fact that the future will see adequate distribution. Oil companies in general are anxious to find new users for LP gas, and are apparently willing to go to considerable length to make the fuel available as demand is developed.

Present Fleet Usage

SEVERAL fleets throughout the country have already converted part or all of their vehicles to LP gas operation. A notable example is Streffke Freight Co., Wausau, Wis., who report excellent results with this type power. The Carnation Co., of Los Angeles, is now using 100 pieces of LP gas equipment consisting of Fords, Chevrolets, Internationals, GMC's, Whites. These trucks operating on wholesale milk and ice cream routes in and around Los Angeles, are averaging $3\frac{1}{2}$ miles per gallon on both gasoline and butane. They are getting 90,000 to 100,000 miles of operation on a Chevrolet with butane before overhaul, whereas with gasoline a maximum of only 30,000 miles before engine work is required. In this operation fuel cost of butane is 13.3 cents per gallon as compared with $17\frac{1}{2}$ cents for gasoline.

The Los Angeles Brewing Co. is using 54 route trucks equipped with butane-propane engines. It is reported that they are getting 10 per cent more power on the small trucks with butane-propane over gasoline, and that power on large units is increased as much as 20 per cent. These vehicles average from $3\frac{1}{2}$ to 4 miles per gallon, and cost is 5 to 7 cents less per gallon than that of gasoline. After eight years experi-

(TURN TO PAGE 104, PLEASE)



"—I'll see that and raise you ten—"



HERE'S THE GREAT NEW TRUCK THAT SURPASSES ALL OTHERS IN Economy — Maneuverability — Deliveries

IN EVERY WAY it's tomorrow's way to deliver... today... for the Falls City Brewing Company, in Louisville. The new fleet of White 3000's now operating in the Louisville area brings new truck efficiency and economy because this great new White is functionally designed for more capacity... more deliveries.

The ease of handling the White 3000... the time saved in driving, parking, loading and unloading... the space saved on the street and in the garage all are advantages put into

daily use by this handsome Falls City fleet. Each Falls City White 3000 handles 476 cases—more than double previous truck capacity—yet it's a more maneuverable, easier to handle truck. The extra capacity eliminates the always expensive "second trip". In every way it's *miles* ahead... and you are *dollars* ahead with this great new White!

See your White Representative for full information about the exclusive time- and cost-saving advantages of this great new White that is *miles* ahead!

THE WHITE MOTOR COMPANY • Cleveland 1, Ohio, U. S. A.

THE WHITE MOTOR COMPANY OF CANADA LIMITED • Factory at Montreal



FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

L-P Gas Gets OK

Continued from Page 102

ence with this type fuel, the company reports no fire accidents of any kind.

Western Transport Co. of Los Angeles, with 12 heavy-duty trucks in operation on over-the-road work report twice the mileage between overhauls and operating costs from 1/3 to 1/2 that of similar gasoline powered vehicles.

The Twin Coach Co. is now experimenting with a converted bus in transit service in Chicago. The vehicle under

test is burning propane at a compression ratio of 10 to 1. The engine is a standard Fageol FTC-180 converted to LP fuel. Just recently the company has announced a complete line of standard motor vehicles designed for operation on 125 octane propane fuel. Seven standard bus models of 34 to 58-passenger capacity will be powered with the Fageol engine which will operate with a compression ratio up to 14 to 1. In addition, the company is now offering a conversion kit which will change its postwar coaches to propane with minor modifications.

The Hall-Scott Motor Division of ACF Brill Motors Co. has made hundreds of LP gas installations for heavy-duty trucks dating as far back as 1930. During the past six years 640 original equipment installations of LP-fueled engines have been made. More recently H-S has been working on the application of LP gas to their horizontal engines as used in the ACF Brill buses; accordingly ACF Brill is now prepared to offer buses fueled with LP gas to the transit industry.

Off-the-road equipment has proved the practicality and economy of LP power in several operations throughout the country. The Garrison Dam Project, for example, is being carried out with the aid of 30 cu yd Euclid dump trucks powered with LP gas engines designed by Hall-Scott. Butane engines are being operated in heavy vehicles in the Minnesota Iron Range with consistent success. Feather River Pine Mills in California is using Hall-Scott 400 engines equipped to burn butane, and oil well vehicles in the Southwest are reporting excellent results with this type fuel.

END

Please resume your reading on P. 65

Commercial Motor Will Build New Facilities in Columbus

Commercial Motor Freight, Inc., Columbus, Ohio, will construct a terminal, garage and offices on a tract of 7.13 acres at an estimated cost of \$433,427. The new plant, of brick and steel, will consist of a one-story terminal, one-story and basement office facilities, steel garage and truck repair shop, containing in all 25,156 sq ft.

Movers Select Chicago

The Household Goods Carriers Conference will hold their annual convention July 6-8 at the Sheraton Hotel, Chicago.

According to a tentative schedule, one of the principal speakers at the meeting will be Richard F. Mitchell, whose nomination to a seven-year term as an Interstate Commerce Commissioner recently was approved by the Senate Interstate Commerce Committee.

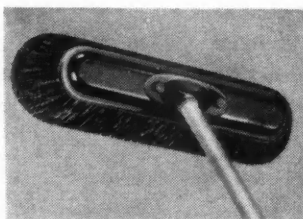


Picture the Savings!

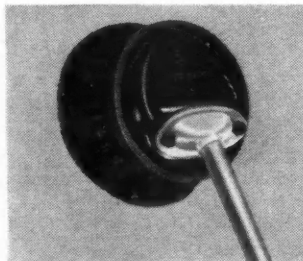
There's no tool that cuts washing costs like a Speed Wash fountain brush. Clean, fresh water is constantly fed to the surface. Tufts of Nylon and Horsehair protect the finish. Tufts are hand-stitched with rust-proof wire for long service. Block is covered with a sturdy steel back, yet brush weighs only 40 ounces for easy handling. Five foot handle is detachable. Brush head is economical to replace. Write for full details today.



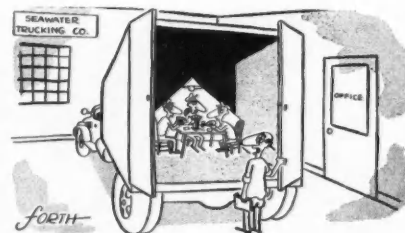
Milwaukee Dustless Brush Co.
530 N. 22nd St., Milwaukee 3, Wis.



Oblong Speed Wash for Heavy Duty Trucks, \$11.75

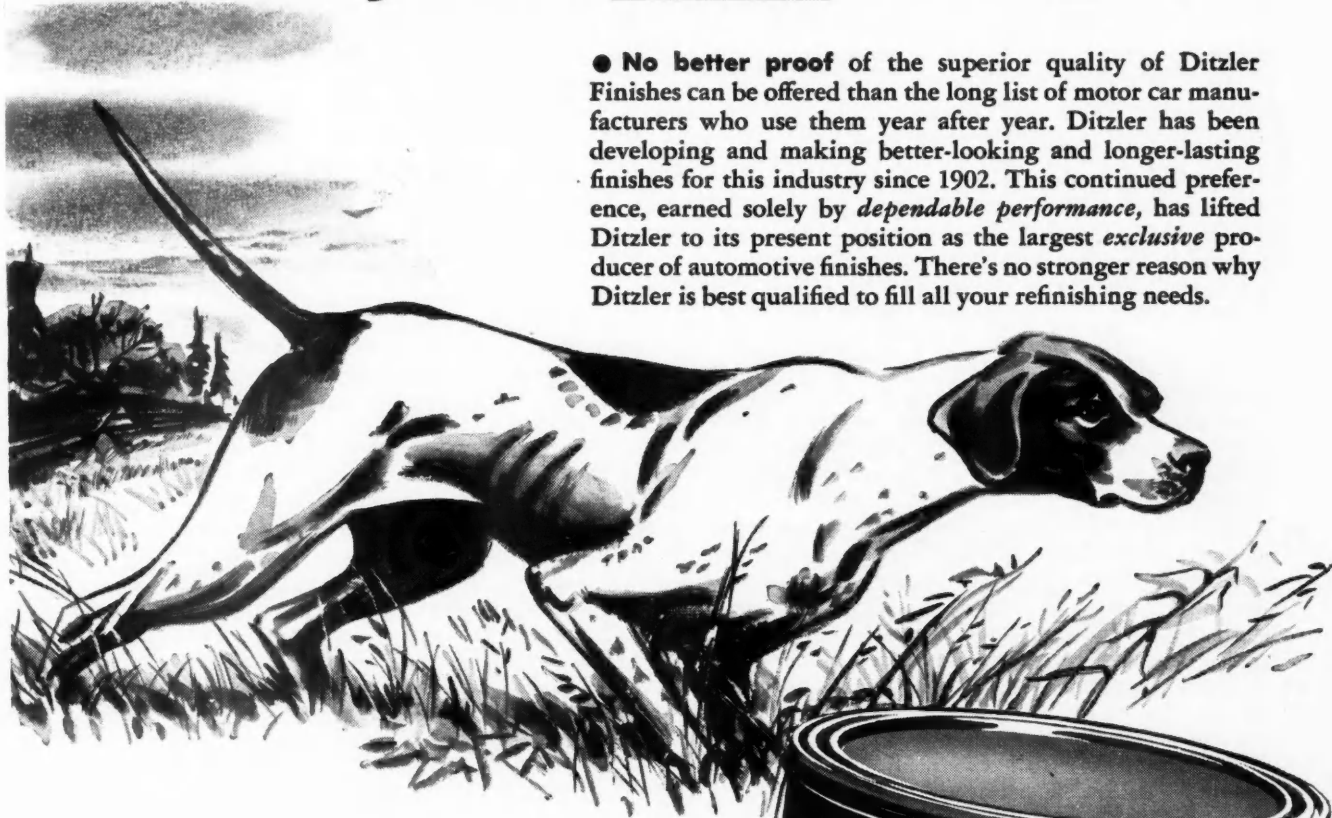


Round Speed Wash for Light Trucks, \$14.25



"I don't mean to disturb your little game but these are working hours, you know!"

When only the finest will do...



● No better proof of the superior quality of Ditzler Finishes can be offered than the long list of motor car manufacturers who use them year after year. Ditzler has been developing and making better-looking and longer-lasting finishes for this industry since 1902. This continued preference, earned solely by *dependable performance*, has lifted Ditzler to its present position as the largest *exclusive* producer of automotive finishes. There's no stronger reason why Ditzler is best qualified to fill all your refinishing needs.

**You can't buy better
Black Enamel than
DITZLER'S DQE-9000!**

● Now better than ever—Ditzler's DQE-9000 widens its margin of superiority over all other brands. Exhaustive tests prove it to be a deeper jet black. Dries rapidly without wrinkling or flattening to a rich, glass-like lustre. Doesn't lose lustre when sprayed over other finishes. Has excellent "build"—flows over small imperfections to give a smooth surface with good film thickness.

DITZLER COLOR DIVISION, Pittsburgh Plate Glass Co., Detroit 4, Mich.



P I T T S B U R G H P L A T E G L A S S C O M P A N Y

Conference Corner

Continued from Page 10

UNDOUBTEDLY, if operators knew more about the various types of clutch facings, they would enjoy a great deal better service from their clutches.

Since our problem concerns, first, the manufacturer of the vehicle, we endeavor to analyze the specifications and uses for which the vehicle is designed, taking into consideration the power to weight ratio, the kinetic burden that will be expected of the clutch, and all other conditions that influence the type of facing that should be recommended for each installation. Many of our manufacturing customers prefer us to make these recommendations; others of our customers prefer to make their own specifications, and there are occasional instances where the purchaser of the truck specifies the type of facing for the vehicle. We believe, naturally, that of this group, the clutch manufacturer possesses information and performance knowledge that makes him better qualified to specify the type of facing for each vehicle installation. Some of our very large customers have their own facilities for testing facings, and have excellent service records to guide them in specifying the type of facing they prefer. Least qualified to select facings is the ultimate user of the facings, for there are literally hundreds of causes of short clutch facing life that bear no relation to the type of facing that is used, but are associated with many other problems inherent in the vehicle and its operation.

Several Factors Influence Choice

by a
Clutch Manufacturer

Still another factor enters into this picture, and that is the manufacturers of facings, for they also enter into our recommendations to a considerable extent, in an effort to tailor make each clutch to each vehicle. We can say that, in our heavy-duty service, the best fabric facings that we can purchase are used for most all installations, and in some instances these facings are grooved. There are several reasons for grooving—one of which is to provide adhesion breakers where oil vapor is encountered in the clutch compartment.

Molded facings are infrequently used by us, except in such instances where their use may be dictated by conditions of operation and cost.

Metallic and Semi-Metallic facings are seldom used, primarily for the reason that their friction characteristics are very low. However, we do use these types of facings in certain types of operations which are adapted to this type of material.

In clutches, always, we have the problem of heat. As a result of this, facings are selected for their ability to resist high temperatures.

The coefficient of friction very definitely is a large factor in the recommendation of a friction material. It is desirable to have a high friction value and a consistently stable coefficient of friction, since a variable coefficient seriously effects clutch capacity.

It is inevitable that we are all concerned with wear, and although this is not a first requirement of any facing, it must necessarily be a consideration in the selection of a facing. Nowadays, with high compression and high speed engines, centrifugal force which tends to disintegrate facings at high rpm, compels us to specify material having a high tensile strength.

Please resume your reading on P. 14



perfect control **BLUE STREAK** *cutouts*

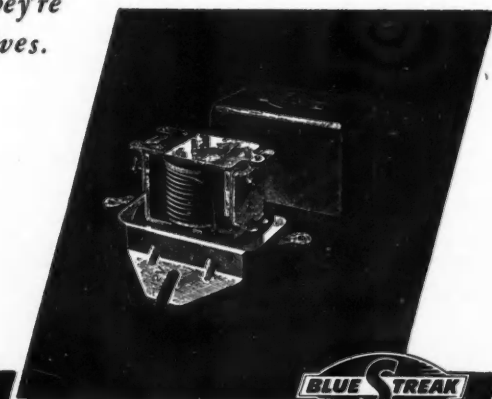
Blue Streak cutouts are a saving from the word go. They're easier on your generators; they last longer themselves.

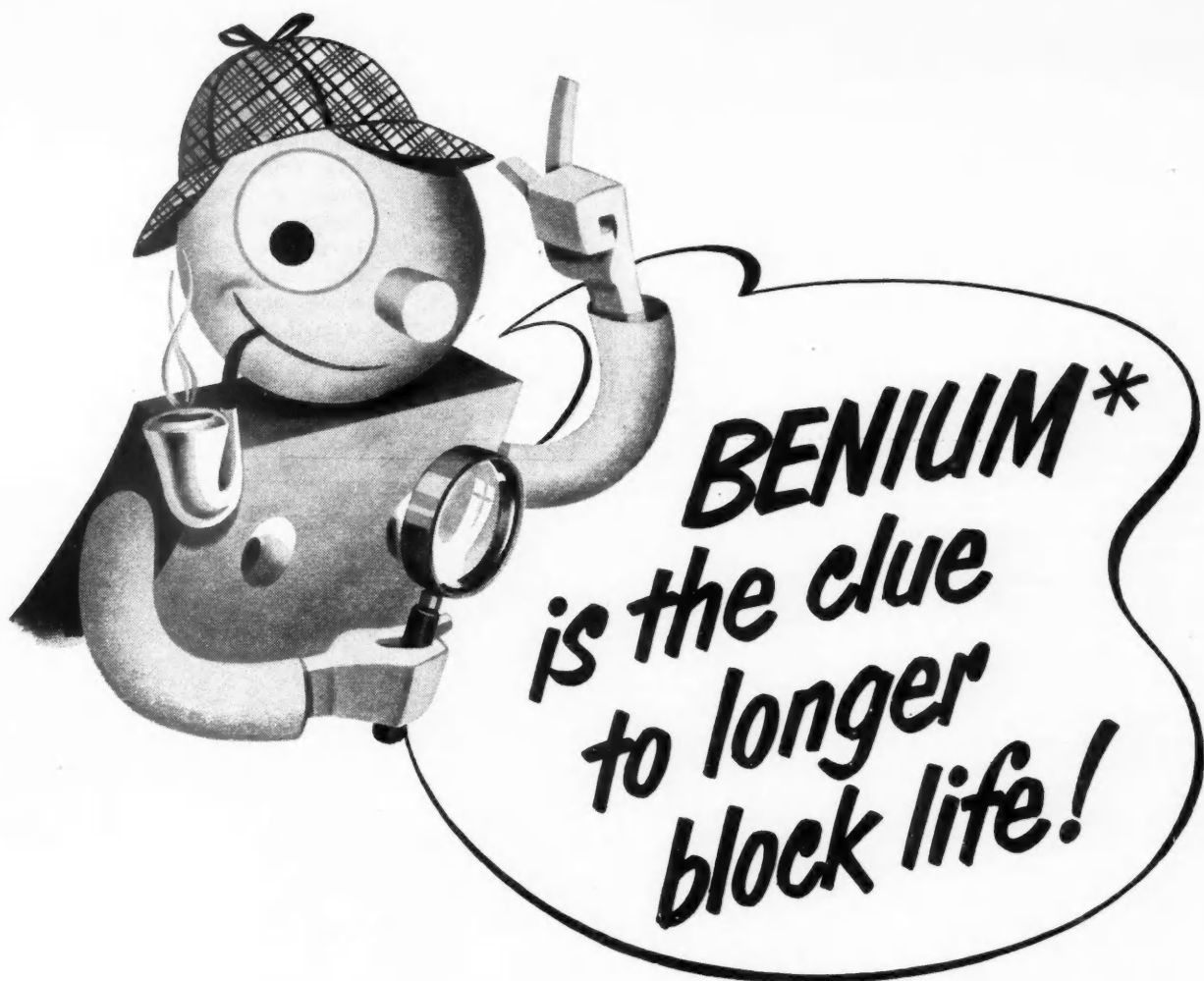
- Heavy magnetic pull prevents chatter.
- They de-magnetize quickly.
- Points open and close with a snap, so there is a minimum of point burning.

These are exclusive Blue Streak features which make the Blue Streak cutouts more efficient and more economical all the way. Try them, and save!

STANDARD MOTOR PRODUCTS, INC.

Long Island City 1, New York





There's no mystery involved in the extra service life in Bendix Eclipse Brake Blocks. The case can be solved with one word—**Benium**. Trucking men everywhere have been amazed at the difference it makes; because, in addition to the extra mileage and resultant savings in maintenance costs, Bendix Eclipse Brake Blocks deliver smoother, safer stops all the way. Install them on your trucks, then, as you watch those bonus miles roll by, you'll agree—**Benium** is just the clue you have been looking for.

BENIUM* Heat-resisting material is the secret ingredient developed by the Marshall-Eclipse Division of Bendix and used exclusively in Eclipse brake linings and heavy-duty brake blocks.

Bendix Eclipse **BRAKE BLOCKS**

PRODUCT OF
the Greatest Name in Braking!

MARSHALL-ECLIPSE DIVISION OF
TROY, NEW YORK



"Keeps 'em Standard"

Continued from Page 56

ment know not only the exact type required, but also the length of time the unit has been in service. This last bit of information serves as a check on its original performance or the caliber of the rebuild entailed.

Maintenance Routines

AS TO our actual maintenance routines at Carolina Coach, most of the essential points are highlighted in the drawings and photographs which accompany the first part of this discussion. As pointed out in the captions, the key to our whole maintenance routine lies in the daily inspection and grease pit area where every bus is checked for all mechanical needs. This check works two ways, consisting of an on-the-spot inspection and a careful check with the records section through the "intercom" system. If the bus needs a grease job or a quick adjustment, it gets it where it is. If it needs anything else it is routed to any of the departments shown by the arrows on the drawing for further attention.

At branch shops the facilities, of course, are in much more limited space. But the inspection routine is the same. Thus, every bus at the end of every run, whether it comes back to home base or whether it ends up at the end of the line gets the daily check. And, incidentally, that end of the line may be as far away as New York City for on the long through runs we often interchange with properties in the Trailways system.

Running through some of the highlights of the shop, let's begin at the upper left-hand corner of the lay-out plan on page 55, at the little room marked air compressor. This is a rather unusual job. The air compressor is a rather unusual one in that it has an output of 140 cfm @ 440 rpm. The air is stored in two tanks 20 ft long and 30 in. in diameter. The reason for this large compressor is the fact, that we make use of all kinds of air tools such as sanders, sprayers, screw drivers, large wrenches and all types of small wrenches and we are adding more pneumatic tools to our shop equipment all the time. This compressor also supplies the air system of our overhaul room in which repairs and tests are made on the various valves, compressors, thermostats, etc., used extensively in our buses, for cleaning oil ways and blowing trash from different parts. Our tire shop is also serviced from this one compressor. Although air is used in such large quantities, this compressor supplies ample air for the entire plant area.

The three pits on the north side, and the four on the south side, are interconnected; each having a set of steps leading down to the lower area. On the north side, the shop has one blind side, but, on the south side, the pits are equipped with doors at both ends for straight-through movement.

In the shop records office, we maintain all records pertaining to the units. They are standard forms beginning with

the big General Motors' Form showing the mechanical history of each unit. Then there are the other usual forms for each inspection period.

Next are the various small-unit overhaul departments, equipped with excellent tools and instruments for making the tests and adjustments needed. It will be noted that throughout the entire north side there is an overhead crane running straight through the main machine shop area to the dynamometer room. The separate lay-out plan of the machine shop and unit overhaul section (page 56) shows how the

Warning Against

is DRY STARTING ruining your engine?
ENGINE PARTS MAY RUN WITHOUT OIL FOR AS LONG AS 5 MINUTES AFTER STARTING

STOP DRY STARTING
Most Engine Wear Occurs Right After Starting

at last! GRAPHITE IS TAMED FOR ENGINE USE!

Miracle Power prevents DRY STARTING

Miracle Power

Miracle Power

Miracle Power

THE SATURDAY EVENING POST

These advertisements are three of a regular and continuing schedule in the Post during 1950.

equipment is laid out. We use portable stands equipped with casters (swivel at one end, fixed at the other) for both overhaul and storage. When needed, an engine may be rolled directly under the overhead crane and hoisted to the bus.

As shown on the layout on page 55, the engine dynamometer is set up in a separate room to reduce the noise level in the main shop area. We have a standard run-in procedure totalling about four hours under careful supervision for each rebuilt engine.

Our one twin post lift, mounted in

the steam cleaning shed, is used primarily for underbody cleaning, before each major service operation. Here also are located cleaning tanks of various capacity for handling everything from a carburetor to a complete block.

On the south side of the illustration will be noted the battery house, a body shop, a very elaborate front-end and frame alignment machine, the two paint shops, the grease pit, another service area which includes the chassis dynamometer, the tire shop, and a storage area. The tire shop, as customary, is operated entirely on lease contract with the tire supplier.

As a final note, I might explain that, in general, coaches are serviced by makes; about three different makes being assigned to each of the two main repair areas. It is, of course, obvious, however, that the inspections and repairs, both major and minor, are carried on in their designated areas which include the changing of engines as well as all other units. All jobs requiring a chassis dynamometer check are shunted to the booth on the south side.

Standardization Fosters Unity

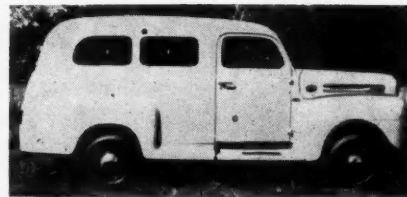
STANDARDIZATION certainly applies when it comes to inter-departmental relations. We at Carolina Coach are strong believers in the fact that no one department runs the business. Operations and maintenance, particularly, should be equally informed about each other's problems and progress. The entire organization should know of changes in policies, new work being taken on, company goals, and other details necessary to function properly as a team.

Frequent inter-departmental meetings, held at regular intervals, and clear, easy-to-read bulletins issued to all members of the organization are the principal means we are using to accomplish this unity of purpose.

Then there is the problem of training—both mechanics and drivers. Here particularly, we do not want to imply that by using standard procedures we attempt to break down individual initiative. But we do adhere strictly to minimum standards for each job category. We believe, for instance, that every driver should be grounded in basic mechanical theory. He should know how to properly start a cold engine, and why. He should understand the basic electrical system, brakes, and what takes place inside the engine. And so through our operations department.

(TURN TO PAGE 110, PLEASE)

M-H Converts F-1



This 7-passenger, all-wheel drive carry-all was converted from a standard Ford panel delivery by the Marmon-Herrington Co., Inc. Two back doors open fully into more than 160 cu-ft of cargo space, with seats removed. The floor is covered with a rubber mat and the remaining interior is lined with long wearing artificial leather. The unit is powered by either the Ford 239 cu-in. V-8 or 226 cu-in. L-head 6-cyl engine

DRY STARTING Sweeps Nation!

Motorists Learn How Miracle Power Prevents Engine Damage

New car owners, as well as millions of other motorists, are becoming aware of "Metal Ulcer" damage to their car engines caused by DRY STARTING. And they're learning why Miracle Power prevents DRY STARTING.

When new car buyers ask you for protection during break-in—and after—protect them and yourself . . . just add Miracle Power to both gas and oil.

THE AP PARTS CORPORATION

AP BUILDING • TOLEDO 1, OHIO

MUFFLERS • PIPES • MIRACLE POWER • dgf-123



Hendrickson's one basic design



**HENDRICKSON
TANDEM**

right for every tandem application



HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

"Keeps 'em Standard"

Continued from Page 109

ment we have a definite mechanical training course for every driver.

Driver's "Ten Commandments"

WE'VE even set up a set of "Ten Commandments" for drivers, which not only have helped prolong the period between overhauls, but have also cut road failures and helped materially in assisting the driver to give an analytical report of troubles noted on the road. Here they are, divided into four DON'T'S and six DO'S.

1. *I will not* race my engine.
2. Cover my radiator with anything that will cause my engine to overheat.
3. Put cold water in an engine.
4. Let my bus or truck override the engine downhill, or at any other time, because it will do more harm to the engine than anything I could do to it.
5. *I will* warm my engine slowly.
6. Start slowly to save my clutch, engine, transmission and other driving members.
7. Save and protect my battery in every way possible.
8. Definitely try to avoid road failures of any kind.
9. Endeavor to be a "good engineer" of my bus and know its limitations, and will not expect it to do the unreasonable.
10. Make my daily trouble report as clear as I can, reporting *all* troubles found by me.

Management's Five "Commandments"

THEN, a final note on the subject of management-employee relations. We have a set of five "commandments" for management. They read like this:

1. If practical, let the other fellow think the idea is his.
2. If you are wrong, admit it quickly and emphatically.
3. Show respect for the other man's opinion.
4. When a man does a good job, praise him.
5. Make a lively game out of the job. Talk it up. Boost it up.

END

Please resume your reading on P. 57

Baker Elects Two V.P.'s

Baker Industrial Truck Division of The Baker-Raulang Co., Cleveland, Ohio, has announced the election of Robert H. Davies as vice president and acting general manager and Edward H. Remde as vice president.

*Quaker State stabilized Quadrolube
is especially made for transmis-
sions and rear axles, except hypoids.*
It is exceptionally resistant to
pressure and heat.*



QUAKER STATE QUADROLUBE embodies all the unparalleled qualities of 100% pure Pennsylvania base oil. It resists not only pressure and heat to a remarkable degree, but it also resists cold, moisture, rust, corrosion and foaming.

To help keep your equipment rolling at its best, give it complete Quaker State Lubrication Service.

**For hypoids, use Quaker State Super Quadrolube.*

Does the Diesel Pay Off?

Continued from page 71

careful machining and high quality of the parts going into the injectors and fuel pump. Even with high production the carefully machined injection pump cannot compete with the relatively simple carburetor, or the high pressure fuel lines with high tension cables, or the precision-designed injectors with the simple spark plugs. In addition, accessories such as a 12-volt generator, a heavy-duty starting motor and extra

size batteries put original installation costs ahead of gasoline units. This must be offset with savings in fuel, and fuel savings in turn are directly proportional to yearly mileages, as Mr. Horine says later.

Weight of present day diesels, varies of course with design, but in most cases the diesel engine will add 500 to 1000 lb to the weight of the vehicle, most of which is due to increased

weight of accessories. To operators figuring a pound of weight saved is a dollar earned, this will be a serious drawback.

Cost records of many fleets show that mileages between overhauls are similar between the two types of engines. Many operators make no distinction between the two, slating overhauls at a predetermined mileage. However, cost of overhaul is greater for the diesel. Rings, pistons, cylinder liners, and similar jobs may run about the same, but rebuilding of the fuel injection system does entail approximately \$125 to \$150 more than the gasoline engine. For example, it takes from four to five hours to pull the injection nozzles and completely overhaul them on some engines. From eight to twelve hours are required to overhaul an injection pump. It should be added here, however, that this can be offset by the savings in maintenance between overhauls in most operations, and authorities insist that these costs cancel out over a period of time.

Reports reveal that overhaul stands for the fuel system, calibrating devices and testing apparatus cost appreciably more than overhaul equipment for gasoline engines. Furthermore, specialists are required to maintain the injection nozzles and the fuel pumps. Manufacturers recommend that the injection pump be sent out to local specialists or to the factory branches unless personnel is thoroughly trained in this work.

Contrary to popular belief, diesel maintenance in general does not require more highly skilled mechanics (aside from specialists overhauling the injection pump). Minor adjustments, tune up and major overhaul can be accomplished in about the same time and with the same men who maintain the fleet's gasoline vehicles. First requisite of any mechanic is that he know what to do and what *not* to do in diesel work. Most shops are not equipped to overhaul pumps, but all other phases of maintenance is no more complicated than that of gasoline engines.

After the potential owner has considered the former factors, he will want to know what size vehicles and what peculiar operation justifies the purchase of the diesel engine. At present some manufacturers are recommending diesels under the following conditions:

1. For vehicles operating 60,000 miles and over per year.
2. For vehicles operating at low speeds a great percentage of the time or where the engines are run for many hours.
3. For heavy-duty operation, requiring peak horsepower over hilly terrain a great percentage of the time.

These categories are necessarily general.
(TURN TO PAGE 114, PLEASE)

Shop Foreman Reports Big Savings With Stewart-Warner's New Electronic Wheel Balancer!



Here's What SAM RANGE, Shop Foreman of the ET&WNC Transportation Company,* says—

"Since getting one of your Stewart-Warner Electronic Wheel Balancers, we have 50% less trouble with front ends and tires. We have in constant use, 55 Fords and Chevrolets and also 120 White tractors. We truly believe this is the best investment that we have made in shop equipment."

*Johnson City, Tennessee



SAM RANGE helps check the front right on one of ET&WNC's super-power tractors.

IN MINUTES, this new Electronic Wheel Balancer checks single or dual, front or rear wheels—in true, running position! You avoid costly repairs, replacements and "downtime" in advance! And you increase driving comfort and safety.

Vibrations and pounding on front-end assemblies, tie rods and bushings

are eliminated—without removing the wheels from the vehicle. Degree of unbalance is quickly, accurately registered up to 2/1000 of an inch by this easy, Electronic method.

WRITE TODAY for complete free information on this easy-to-use unit, produced by Stewart-Warner only. Address Dept. D-50 for rapid reply.

Stewart-Warner Corporation

Dept. D-50, 1826 Diversey Parkway, Chicago 14, Illinois

Developed by three years of research . . . and now refined by
tens of millions of dollars' worth of new equipment!

Gulf's No-Nox

GREAT NEW

DESIGNED FOR TODAY'S POWERFUL NEW ENGINES!

Today's new cars have the most powerful engines ever made. AND—

They require a super, anti-knock gasoline.

Such a gasoline is the new No-Nox. It was especially designed by Gulf scientists—working hand-in-hand with leading automotive engineers—to give you *maximum* performance in your new car.

With a gasoline like this great new No-Nox, you can be sure your new car will perform at its brilliant best.

And the new No-Nox not only gives new cars peak performance. It also gives new life, new pep, and stops knocks in older cars too — even many with heavily carboned engines!

So no matter what model you drive, get a tankful of the new No-Nox today.

See for yourself what a difference it makes!

Whisper-Quiet, Knock-Free Power!

Easy, Fast-Firing Starts!

Quick, Safe Passing!

Unexcelled Mileage!

Terrific Power in Every Drop!



Good Gulf—our famous “regular” gasoline
—is now better than ever, too!

Gulf Oil Corporation • Gulf Refining Company

Does the Diesel Pay Off?

Continued from Page 112

eral since many other factors will enter into the decision. The fuel economy picture alone will justify the higher initial cost when mileages exceed 60,000, for as Mr. Horine points out, the higher cost can be made up the first year. Since the diesel is also more efficient at part throttle and at idle, operations which do not run up high mileages but which require low speeds and a great deal of time at idle will profit from the

use of diesels. For this reason local transport operations should look into this type power. And finally off-the-road equipment, with its heavy-duty power requirements, long idle periods and lack of weight restrictions can profitably use (have profitably used) diesel engines. Maintenance and fuel records of contractors, mine operators, oil well fleets bear that out.

Manufacturers are frank in their appraisal of the diesel. Fred B. Lautzenhizer, for example, insists that "there is a distinct field of usefulness for both types and each type embodies a certain

advantage and disadvantage not common to the other. The type of engine selected for any particular service is entirely a matter of economics," he says. "If, for a certain class of service, the diesel engine will provide the desired general performance and will show a lower operation cost over the period of its useful life, by all means it should be chosen. In any operation where the diesel cannot stand on its own feet economically there can be no justification for its use."

Here is what Merrill Horine, of Mack Trucks, Inc., says about the economy characteristic of diesel operation:

"Examination of diesel transport potentialities has shown that percentage-wise the price handicap decreases with the size of vehicle or hauling unit. Savings by reason of fuel economy are consistently about 50 per cent, so that in any operation where the annual fuel expense exceeds twice the interest and amortization on the additional price of the diesel-powered vehicle, an overall saving is indicated.

"For example, assume a vehicle whose miles per gallon with gasoline power is $4\frac{1}{2}$ and its annual mileage 60,000. If we take 21 cents per gallon as representative of what fleet users the country over pay for gasoline, this means an annual fuel consumption of 13,333 gallons, which at 21 cents per gallon will cost \$2800. The diesel will save half of this, or \$1400 per year.

"Now if a truck similar to this one, but equipped with a diesel engine of equal power, is priced \$1700 above the gasoline truck, this entire additional investment will be offset by fuel savings in a little short of 15 months, after which the fuel savings will remain.

"However, this is not clear gain, for on the additional \$1700 price there will be an annual investment charge of let us say 6 per cent interest on the average amortized investment, or \$51, and an amortization of the extra price at the rate of 300,000 miles or 5 years. This amounts to \$340 per year, making a total investment charge of \$391 per year. Now if we take the entire extra investment and its full interest at 6 per cent, we find that it will take a trifle over 15 months to offset it from fuel cost savings, after which the \$1400 annual savings will be net gain. On an original extra investment of \$1700, plus

(TURN TO PAGE 117, PLEASE)



Stay Ahead of the Job With "On The Job" Design

It's the day-by-day performance that counts. That's why Marion Bodies and Hoists will help you stay ahead of the job.

Every Marion unit is designed "On The Job" under actual working conditions. Faster loading and dumping . . . extra pounds on every trip . . . longer service life . . . are engineered into every Marion unit.



MARION

BODIES AND HOISTS

GET MORE DETAILS NOW
Just mail a post card or letter for the complete Marion catalog, or ask your Marion Distributor.

MARION METAL PRODUCTS CO., MARION, OHIO



Does the Diesel Pay Off?

Continued from Page 114

\$340 amortization, or \$2040, this amounts to 68 per cent.

"Of course, by proper accounting methods, we would compare the annual investment charge on the extra price with the annual fuel savings. In other words we would compare our \$391 investment charge with our \$1400 fuel savings, showing a constant annual saving of \$1009. There will be those who will not accept this, in view of the fact that the diesel installation increases the weight of the vehicle. We can reject any theoretical effect this additional weight might have on fuel consumption, for we have already allowed for that in our general saving of 50 per cent of our gasoline bill and, since the additional weight is practically all on the front tires which are already underloaded, it certainly will have no noticeable effect on tire costs. This leaves the effect of this increase in tare weight as the only possible penalty for this increased weight.

"Whether or not it is a penalty depends upon the legal weight limitations in the states in which the truck is to operate. If the vehicle is up to a maximum GVW or GCW with the gasoline engine, whether the limitation be as such or through the Bridge Formula, then this additional weight will decrease the maximum payload. How serious this is in consideration of the economies effected, of course, depends upon the amount of extra weight involved and the value of the payload capacity. Out on the Pacific Coast, where operators are more weight conscious than anywhere else I know of, they value payload capacity at \$1.00 per pound per year in long-distance motor freighting. Additional weight involved in diesel installations vary, but in one of our own models the additional weight is 573 lb—mostly made up of the extra weight of the electrical auxiliaries. If we accept the figure of \$1.00 per pound per year for lost payload, then from our \$1009 net fuel cost savings, we must subtract \$573, leaving a net saving of \$436. At 41,314 miles per year, the fuel savings exactly balance the sum of the investment charges plus the payload penalty. This, then is the minimum economic annual mileage in this case.

"Here's how it is figured:

Min. Econ. Ann. Mi. =

$2 \times (0.23 \times \text{Extra price}) / \text{Extra Wgt., lbs.}$

Gasoline price per gal.

× Gas MPG.

In states where axle weight limitations govern, however, there is no weight penalty, since the weight on the rear axle is unaffected, so that the minimum economical mileage in the case cited would go down to 16,658. In these states, the formula is:

Min. Econ. Ann. Mi. =

$2 \times (0.23 \times \text{Extra Price})$

Gasoline price per gal.

× Gas MPG.

"Applying this test to every truck installation would certainly indicate a

tremendous number of vehicles which could economically be replaced with or changed over to diesel equipment. Of course, in such cases the amounts involved would be somewhat different; but the principle remains the same. Certainly the old credo that diesels are economical only in big-mileage, long distance routes appears questionable."

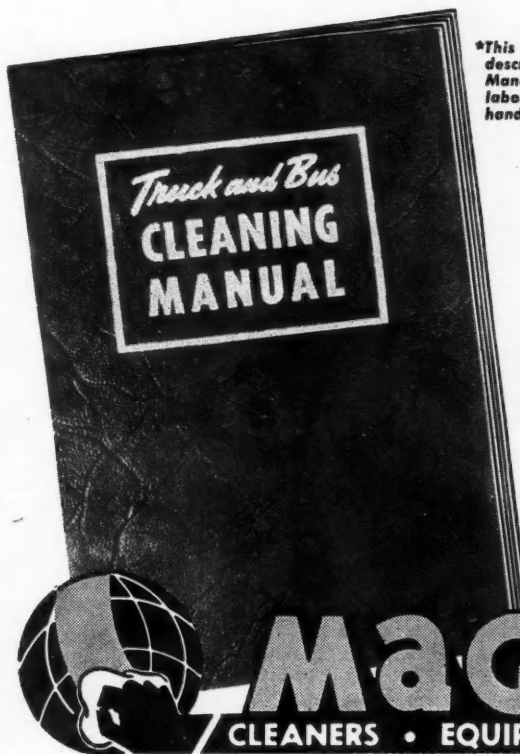
Editor's Note: Mr. Horine's comments were taken from an address prepared for the Maintenance Section, Michigan Trucking Assn., Detroit.

END

Please resume your reading on P. 72

Cleaning Shortcuts* Magnusol Saves \$\$\$ and Eliminates Damage in Chassis and Underbody Cleaning

INSTEAD of slow, laborious steam gun cleaning and steam cleaning compound damage to body paint and undercoatings, use safe, speedy, economical Magnusol. When washing truck or bus bodies, spray a 1-10 Magnusol-kerosene mixture over chassis and underbodies. When you hose off these surfaces, they'll be clean as a whistle, with all oil, grease and road dirt washed away. No streaking or peeling of body paint, or damage to undercoatings. And negligible costs for the extra thorough cleaning job!



*This cleaning shortcut is only one of hundreds described in the Magnus Truck and Bus Cleaning Manual. They can save you plenty in time and labor. Write now for your copy of this 64-page handbook.

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Service representatives in
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MAGNUS

CLEANERS • EQUIPMENT • METHODS

Murder—Wheel Bearings

Continued from Page 68

probable. The limited area of contact will tend to puncture the oil film and the parts will theoretically be in a state of metal to metal rolling contact. The thin film of lubricant present must reduce the slight internal friction of the bearing, carry away the heat generated by the deflection of the metal under load, keep out the dirt, water and prevent corrosion. It is, of course, under-

stood that the bearings should be loaded and maintained within design to get satisfactory results.

Manufacturers' recommendations for maintenance of wheel bearings not only vary greatly but in some cases are difficult to comply with. For example: 5,000-mile wheel packs would be impossible in some fleets because it would mean washing and repacking wheel

bearings as often as six to eight days which would be one of the most expensive single items in heavy duty truck maintenance. These frequent wheel packs are no longer necessary or advisable as there are wheel bearing greases on the market today that are stable enough to permit running from brake line to brake line (30,000 to 50,000 miles) or more without repacking, providing correct adjustment is maintained.

Wheel Bearing Adjustment

ZERO clearance to .005 thousands loose is the adjustment that seems to give the best results. With this adjustment there will be no noticeable play and no drag and the bearings will run cool if not overloaded.

Light preload of bearings is accepted practice in some transmissions and differentials where it is important that the gears be held to close limits. In those applications, the bath of oil carries away the heat, providing the preloading is not too great.

What actually happens when any part is fitted too tight is this: While some operators preload wheel bearings, it is generally considered poor practice. The reasoning behind preloading is the thought that the bearing will wear into a more perfect fit. The so-called break-in period is really a period of uncontrolled rapid wearing out until the parts have sufficient clearance and the chance of complete failure is greatest during this time. In addition, the high load and temperature may permanently damage the bearing because the metal worn off will act as an abrasive and the high temperature will shorten the life of the grease and the seals. Cases have been observed where the preload was so great that the bearing was overloaded before the wheel touched the ground.

Speed and Bearing Life

A WHEEL bearing that gave good service in a trailer pulled by a small truck at an average speed of 25 miles, and a top speed of 45, may be unsatisfactory at an average speed of 50 miles. The reasons are:

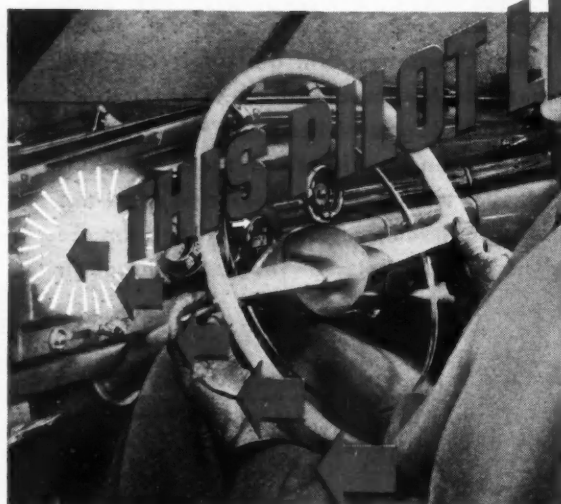
(TURN TO PAGE 120, PLEASE)

Marvel-Schebler Moves

All manufacturing and administrative activities of the Marvel-Schebler Carburetor Div. of Borg-Warner Corp., now located in Flint, Mich., will be transferred to Decatur, Ill., in the late summer or early fall of this year. The Marvel-Schebler operation, which is expected to provide employment for about 400 persons in Decatur, will be housed in a 135,000-sq-ft plant which Borg-Warner leased from the Mueller Co. in May, 1948.

As more and more reliance is placed on signal lights to indicate the intention to turn in the operation of motor vehicles, it becomes increasingly important that the driver know that his signals are working. The TUNG-SOL Flasher provides for a safety pilot light on the instrument panel, as well as a thoroughly reliable means of actuating the signal itself.

The safety pilot light does more than indicate that the switch is "on." Normally, it flashes in unison with



the front and rear signal lights. When it fails to function with the switch on, it warns that the circuit is out of order and that the signal is not flashing.

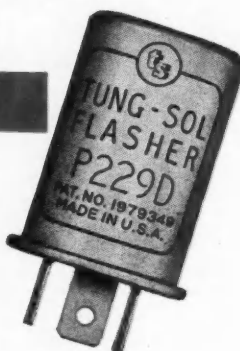
Millions of TUNG-SOL Flashers have been performing faithfully for the past ten years. Ordinarily, they last for the life of the car. They start instantly, work crisply, consume little current and are unaffected by ambient temperatures. Write for bulletin.

TUNG-SOL Lamp Works Inc., Newark 4, N. J. Sales Offices: Atlanta, Chicago, Dallas, Denver, Detroit, Los Angeles, Newark.

TUNG-SOL *signal* FLASHERS

AUTO LAMPS • ALL-GLASS SEALED BEAM LAMPS • ELECTRON TUBES

THIS PILOT LIGHT
*makes
direction
signaling
safer*



PROVING GROUND TESTED *for longer life*

RAYBESTOS Brake Linings, Brake Blocks, and Clutch Facings stand up longer in fleet operation. Careful manufacture, rigid inspection, and proving ground tests are your assurance of that fact.




Raybestos
The Raybestos Division of RAYBESTOS-MANHATTAN, INC., Bridgeport, Conn.

America's Biggest Selling BRAKE LINING



RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Radiator Hoses • Fan Belts • Mechanical Rubber Products • Rubber Covered Equipment • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

Kester Solder



Kester Acid-Core Solder is made only from newly mined grade A tin and virgin lead. The tin-lead content was established by the trade as the alloy that would give the best results.

Dependable Quality

The same top quality year after year. Kester Solders — acid-core, special radiator flux-core, and body solder — can be relied upon to do the job right.

Saves Time

The boys back shop will not consider anything but Kester. They know it is faster and easier to use . . . makes the best solder bonds.

KESTER SOLDER COMPANY
4201 Wrightwood Ave. • Chicago 39, Illinois
Newark, New Jersey • Brantford, Canada

Send for free 20-page booklet:
"Soldering Simplified"

**KESTER
SOLDER**



The Mechanics Standard since 1899

Murder—Wheel Bearings

Continued from Page 118

The load factor goes up with the speed which alone may shorten the life 20 per cent. In addition, the shock of striking rough places in the road is many times greater at high speed than at low speeds.

Wheel bearing design in most trucks and trailers is a compromise. The manufacturer has to make it light enough and the cost low enough so you will buy it. If we could choose the wheel bearing size to fit the use as carefully as we do the engine and some other parts, we could make the bearing life just about anything we want it to be. The manufacturer will build anything we will ask for and pay for. Proof of that is the rapid development in engine horsepower and cooling systems in the past few years.

In conclusion, the one piece of information that is most important in the diagnosis of a wheel failure is seldom available. That piece of information is—how far did it run since it was new and since it was last packed? Unless we know whether it ran 20,000 miles or 200,000, how can we determine if we should register a complaint on the bearing or lubricant, or write the manufacturer a letter of testimonial.

END

Please resume your reading on P. 70

Class I Motor Carrier '49 Earnings Close to '48

Earnings of Class I motor carriers in 1949 were about on a level with 1948 figures, although minor slumps were noted in some instances, it was indicated on the basis of a compilation by the Research Department, American Trucking Associations.

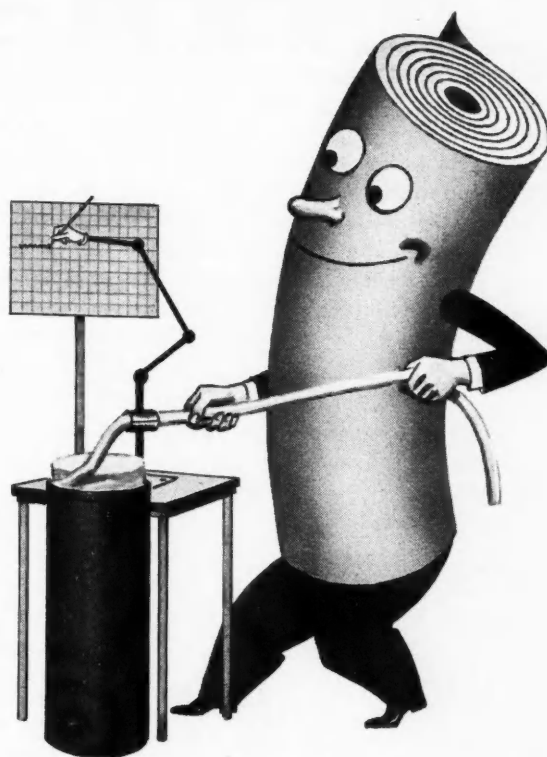
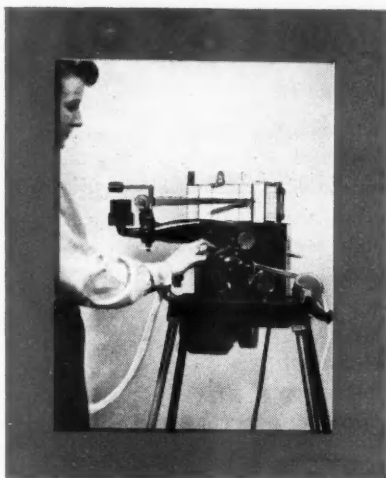
Gross revenue of \$1,894,352,000 was established by 2163 Class I carriers covered in the compilation, an increase of 8.6 per cent over 1948.

Offsetting the revenue increase, however, was a 10.1 per cent rise in operating expenses, moving the operating ratio for 1949 up to 94.9 from 93.5 per cent the year before.

The compilation showed that the carriers traveled 11.9 per cent more miles during the year, although the increase in tonnage handled was only 2.5 per cent.

Separate figures for 991 intercity common carriers of general commodities were about in line with the overall picture. Gross of such carriers advanced 9.7 per cent in 1949, but expenses rose 11.9 per cent. Operating ratio was 94.9 against 93 per cent. Mileage added was 11.8 per cent, while tonnage went up only 1.4 per cent.

CHECKING EVENNESS OF ROVING WITH LINEAR REGULARITY TESTER. One of a series of laboratory controls throughout production to assure fabric uniformity in all Mt. Vernon-Woodberry products.



UNIFORMITY

Makes the Big Difference

In TRUCK COVER Fabrics

**MT. VERNON
EXTRA**

Gives You
Greater Fabric Uniformity

The greater uniformity of Mt. Vernon Extra Duck—the straight, smooth, weather-tight seams made possible by its even selvages — mean added cargo protection, longer wear, lower repair and replacement costs.



Mt. Vernon-Woodberry Mills

Branch Offices: Chicago • Atlanta • Baltimore • Boston • Los Angeles • Akron

TURNER HALSEY

COMPANY

Selling Agents

40 WORTH ST. • NEW YORK

Working Model Achieves Changeover

Continued from Page 67

shown in the accompanying illustration. When seen in this manner, the actuation and operation of door controls are no longer a mystery. To enable the men to follow the electric hook-ups colored wiring was used. Thus, by following red, yellow, blue or other colored wiring the circuits became clearly understandable. Also, all parts were labeled to avoid confusion and help each man to become thoroughly

familiar with all parts and their function in the system. Without this working model, the familiarizing of our personnel with these important controls would have been much more difficult.

It was surprising how many, many suggestions were made by the men that led to the improvement and operating and maintenance efficiency of these controls when the various component parts of the system were brought together in

one compact, convenient and visible arrangement such as obtained by this working model. Therefore, not only did we familiarize our men with the operation of these controls but also achieved a degree of efficiency and flexibility not built into the original vehicle.

Originally, for example, the opening of the rear doors of some of our buses was controlled by opening the front doors. Opening the front door, energized the circuit for opening the rear door. Our first modification of these door controls was the installation of a by-pass valve with a control button at the driver's side. By pressing the button, the driver could by-pass the front door and set up the circuit to open only the rear door. However, with that arrangement the speed of the opening action was delayed, due to the fact that the passenger had to be on the treadle to set up the circuit which applied the brakes and cut the power.

Our present setup eliminates entirely the electrical connection between the front and rear doors. Now this circuit is energized by an electro-pneumatic contact switch incorporated in the same line with the other safety devices. When the driver sets up the control for opening the rear door, he energizes the brakes and the power cut-off before the passenger steps on the treadle.

When the working model, containing all the improvements was completed, the entire personnel was acquainted with our objectives as well as the mechanical details and operating procedures of these controls. They were taken in groups and individually and given the opportunity to operate the basic controls to see exactly what would happen when those controls were installed in the vehicles.

After a thorough understanding was gained, all employees were told how they were concerned with the improvements: Operators were given special emphasis on operation; mechanics on maintenance, and still other mechanics on installation. Thus, with the instruction directed to their senses of sight, hearing, and touch, a normally difficult technical explanation was considerably simplified.

END

Please resume your reading on P. 68

OBSERVATION

Nothing is more frequently opened by mistake than the mouth

Bennett Fleetmeter can solve your fueling problem



If you want speedy delivery, accurate accounting, convenient handling, dependable performance, or all of these—a Bennett Fleetmeter can solve your problem.

Fleetmeters are available in models with standard registers, with totalizers, for keeping count of fuel delivered or "ticket printer" models for exact inventory control. Both "standard" and "ticket printer" models are also made with heavy duty pumping units for faster delivery where required.

Let us help you solve your fueling problem—write today for detailed information. John Wood Company, Bennett Pump Division, Muskegon, Michigan.

BENNETT FLEETMETER

MODEL 789 Standard Fleetmeter with register and totalizer, and ticket printer. (Model 788 without ticket printer)



JOHN WOOD EST. 1867

...The **GATES**
TRUCK BELT
gives us **75%**
LONGER WEAR!

...Because it is
**Specially
Engineered
for TRUCKS
and BUSES!**

The Oriole Motor Coach Lines of Pittsburgh—whose letter appears on the opposite page—is just *one of many*, many Fleet Owners whose actual records show that GATES TRUCK BELTS are giving them 50% to 80% longer wear than any belt they ever used before!

As evidence, we list also the names of big fleet operators all over the U. S.—surely one in your vicinity whom you *know* and can *ask*—and every one of these operators will tell you they are not only saving 50% to 80% in belt costs by using GATES TRUCK BELTS but are also realizing additional savings that are even greater!

Biggest Saving Comes From Reducing Road Delays

You will notice that the Oriole Motor Coach Lines letter says that prior to using Gates TRUCK Belts they had an average of two road calls per week due to fan belt failure and are now entirely free of these most expensive road delays.

Delays on the road naturally cause disappointment to your customers who are often waiting anxiously for delivery of important shipments. *Even worse than that*, road delays cut down the precious *net operating time* of your units—and net operating time is, after all, the one thing that pays you a profit.

Because of the proved gains in operating time the Gates TRUCK Belt is giving other successful operators—in addition to very substantial savings in belt costs—we believe that starting TODAY, you will want to insist on having Gates TRUCK Belts on *your TRUCKS and BUSES*.

**Gates Belt Jobbers in Every City
Can Supply You Promptly**

The GATES RUBBER COMPANY

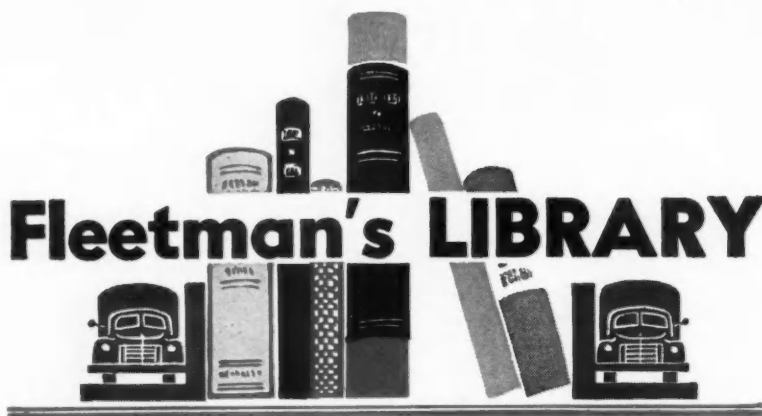
World's Largest Makers of V-Belts

DENVER, U.S.A.

Gates

REG. U. S. PAT. OFF.

T-505



At Last! A LINELESS REPLACEMENT OIL CLARIFIER That REVERSES OIL FLOW to Provide "DEPTH FILTRATION"

for **BUSSES
TRUCKS and
TRACTORS**

Now Equipped with
**Base-Mounted
OIL FILTERS**



No other filter can quite compare with the new W.G.B. Lineless Replacement Oil Clarifier.

First . . . the W.G.B. Oil Clarifier is the ONLY filter that provides the all-important advantage of "W.G.B. DEPTH FILTRATION."

Second . . . the W.G.B. Oil Clarifier is the ONLY filter that can be installed in a matter of minutes on busses, trucks and tractors . . . now equipped with base-mounted oil filters . . . without the need of a special adapter plate or extra parts.

Third . . . the W.G.B. Oil Clarifier is the ONLY filter in which the center tube has been eliminated to abolish the uneven expansion, which frequently causes gasket leakage; also, to obviate the need of an additional gasket on the center tube.

Write today for complete details and the name of the nearest W.G.B. representative.



W. G. B. OIL CLARIFIER, INC.
KINGSTON, N. Y.

LATHE CATALOG, L-10, has 8 pages and contains illustrations, specifications and prices of 4 new models. A copy may be had by writing South Bend Lathe Works, South Bend, Ind.

DIESEL BULLETIN, describing the features of all automotive and industrial models of the HR-400 Cummins Diesels, has been made available by the Cummins Engine Co., Inc., Columbus, Ind.

SAFEGWAY HAND HOIST, a 6-page folder includes complete specifications, action photographs, a cross sectional view of the hoist, graphic illustrations and a listing of its features. Copies of this folder DH-164 will be sent upon request to Wright Hoist Div., American Chain & Cable Co., Inc., York, Pa.

PUMP CATALOG, a fully illustrated booklet, describes in detail all the "O-Boys" of the pump field. It explains the workings of electric, measured stroke, and floating rotor pumps. Write for copy to William M. Wilson's Sons, Inc., Lansdale, Pa.

RUSTREM, a new application bulletin describes the "1000 plus one uses" of this anti-rust paint, in industry, farms, cars and homes. Write Speco, Inc., Cleveland, Ohio.

TESTING BY THE NATIONAL BUREAU OF STANDARDS, a new 93-page circular, describes the Bureau's test policy, presents general information on testing and lists fees. This circular C483, is available from the Supt. of Documents, U. S. Government Printing Office, Washington, D. C., at 25 cents a copy.

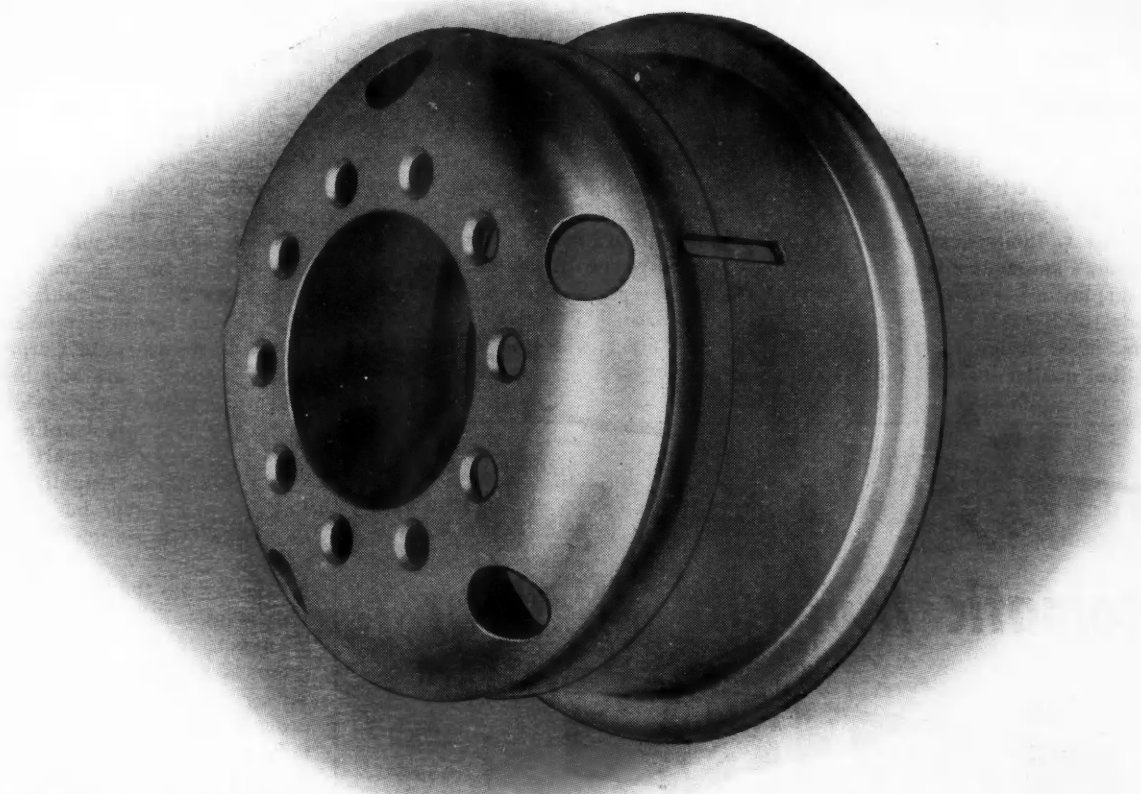
SIGHT FEED ACETYLENE GENERATOR, an 8-page bulletin, describes the new type stationary acetylene generator for welding and other purposes. Write The Sight Feed Generator Co., West Alexandria, Ohio.

WELDING TECHNIQUES, discussed in this 8-page brochure, covers problems of finishing costs, scaling, distortion, softening of heat-treated metals, burn through, weld failure from impact and joining of dissimilar metals. Write for Vol. 6, No. 7, Eutectic Welding Alloys Corp., New York, N. Y.

STREAM-FLO, a 4-page brochure describing a line of pressure fed paint brushes can be obtained by writing the Hanlon & Goodman Co., Belleville, N. J.

WHAT'S YOUR SAFETY IQ?, is the title of a new training film announced by the National Safety Council. It shows common, unsafe, off-the-job actions and conditions that can cause accidents. Prices for purchase, preview or rental may be obtained on request to the National Safety Council, Chicago, Ill.

ELECTRIC TOOL CATALOG, lists on its 20 pages the complete line of power electric tools and accessories with list prices. It can be obtained by writing The Van Dorn Electric Tool Co., Towson, Md.



SAVES WEIGHT ...because Aluminum is light!

SAVES MAINTENANCE ...because Aluminum lasts!

Now you can reduce unsprung weight as much as 400 lbs.* per tandem axle. Switch to light, strong Alcoa Forged Aluminum Disc Wheels on your next truck or trailer order! Results . . . extra payload capacity, less wear and tear on chassis and tires.

Each Alcoa Forged Disc Wheel weighs 32 to 50 lbs. less than a steel wheel. These aluminum alloy wheels are precision-made to run true. Tires run cooler, because the aluminum discs dissipate heat rapidly. What's more, you do not have to paint aluminum wheels!

Ask your truck or trailer builder for facts and figures on Alcoa Forged Aluminum Disc Wheels. Available in 7.50 x 20 and 7.50 x 22 sizes.

*With forged aluminum hubs



Send for free booklet!

Gives full information on Alcoa Forged Disc Wheels — advantages, specifications, installation data. Write to ALUMINUM COMPANY OF AMERICA, 1870E Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA

FORGED ALUMINUM DISC WHEELS



INGOT • SHEET & PLATE • SHAPES, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT-MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS
ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM-PIGMENTS • MAGNESIUM PRODUCTS

Fleetmen Eye the British Diesel

Continued from Page 57

the power take-off is on top of the auxiliary transmission and couples directly to a drum on the back. The frame is of the box type throughout.

At a nearby booth was the diesel exhibit of A.E.C. Limited, where four of this company's automotive type engines were on display, a horizontal and a vertical model each of 589 cu in. and a 690 cu in. basic design. Performance data of the smaller models indicates

that they develop 125 hp at 1800 rpm and 430 lb-ft of torque at 100 rpm. Dry weight is 1660 lb. The larger models develop 150 bhp at 1800 rpm, a maximum torque of 500 ft-lb at 1100 rpm. All have a 16 to 1 compression ratio and use a cavity-type piston head without external compression chambers. Like all other British export diesel models they are fitted with the C.A.V. fuel pump.

AT LAST! A New, Foolproof Automatic Moisture Eliminator

DRAIN MASTER

Keeps Air Brake Systems DRY



ACTUAL SIZE
Automotive Model "A"
(Model "S" for industrial uses)

CHECK THESE ADVANTAGES

- ✓ POSITIVE ACTING—Ejects All Water OUT
- ✓ FULLY AUTOMATIC—Eliminates Manual Draining
- ✓ EASY TO INSTALL—Takes Only a Matter of Minutes
- ✓ COMPACT ✓ EFFICIENT
- ✓ LOWERS OPERATING COSTS
- ✓ PREVENTS RUST
- ✓ REDUCES REPAIR BILLS
- ✓ PROVIDES EXTRA SAFETY

GET POSITIVE PROOF!

The installation of one Drain Master will convince you that it is the answer to your moisture problems. Write or wire today.

GUARANTEED FOR LIFE—no one has ever been charged for the repair of a Drain Master.

Master Equipment Sales

BOX 55, DAYTON 1, OHIO

According to the Canadian representative of this firm one of the 589 cu in. horizontal models was recently installed in an ACF-Brill 36-passenger bus and turned in a fuel record of 8.2 miles per U. S. gal. in city transit service, compared with just over 4 mpg for the gasoline engine which it replaced.

Daimler, Foden and Leyland also had automotive diesel engines on exhibit, the Foden being of the two-cycle type. It was interesting to note that all of them were available with fluid couplings of the identical type now under license to the Chrysler Corp. and used in its passenger cars and light trucks. When questioned, the exhibitors did not expect that this coupling would be used in highway transport service, but stated that it was virtually standard in England in city-type bus service, being coupled with a pre-selective type transmission.

Unveiled for the first time was a new Austin taxicab, which is being offered in direct competition with American products and particularly for the New York City market. While inside body proportions were quite similar to the familiar New York City cab—a full back seat and two jumper seats, the chassis was obviously smaller and lighter than the presently accepted stand-

(TURN TO PAGE 130, PLEASE)

Southern California Truckers Report on Muffler Tests

A detailed report about the results obtained in tests of 30 mufflers on over-the-road trucks and tractors has been published by the Muffler Noise Committee of the Motor Truck Association of Southern California.

The purpose of these tests was to set up an evaluation of different mufflers and thereby investigate possible means of future standardization of muffler tests. The tests included a variety of different trucks and mufflers, however, for the final analysis only mufflers of the selected test truck are considered for a valid direct comparison. Pacific Freight Lines supplied the test truck which was equipped with a 200-hp diesel engine, and made available their chassis dynamometer.

Two methods of judging the silencing results were used. One method was the use of a three-band decibel sound meter. The second method was subjective judgments by members of a jury of judges stationed at various locations around the test area. It is reported that "sound level meter readings do not always check with a sound jury's estimate of loudness, because the average ear compares tones of dissimilar frequencies, but identical decibel intensities of sound, as having different levels of loudness." The committee reports, however, that both methods should be used in test work or until a satisfactory correlation is discovered between meter readings and human reactions.

SAVE 25% OR MORE

ON DRY ICE

Truck Refrigeration Costs



WITH
Foster-Built
DRY ICE TRUCK BUNKER

DRY ICE SAVED MEANS DOLLARS TO YOU

The Foster-Built Bunker is the new low-cost way to efficient dry ice truck refrigeration. It assures *uniformity* of temperature and saves you 25% or more on your dry ice bill. Don't waste dry ice by throwing it on top of the load...save money...use Foster-Built Dry Ice Truck Bunkers.

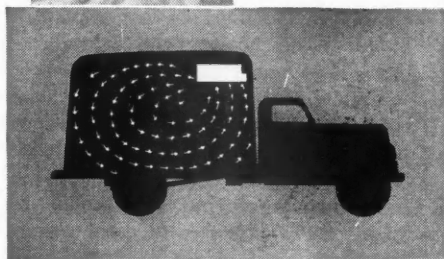
LIGHT WEIGHT—BIGGER PAYLOADS

The 2-block Foster-Built Bunker weighs only 38 lbs. net. It is easy to install and requires no maintenance. Foster-Built Bunkers have proved efficiency in maintaining desired temperature both for frozen and non-frozen loads.

FOOLPROOF IN OPERATION

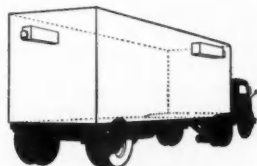
The Foster-Built Bunker is constructed so that the Dry Ice rests directly over a 2-inch bottom air duct. The Dry Ice chills the metal top plate of the air duct, and a low-amperage sirocco-type fan forces the air along the length of the chilled plate, effectively lowering the temperature of the air. The chilled air is then circulated throughout the truck.

GET THE FACTS . . . MAIL THIS COUPON TODAY . . .
or for immediate action call MOOnroe 6-6880, Chicago.



Tests on route trucks have shown that Foster-Built Dry-Ice Truck Bunkers maintain desired temperatures more than 18 hours with as many as 30 to 40 door openings.

Transport trucks with Foster-Built Dry-Ice Truck Bunkers have gone as long as 72 hours under moderate weather conditions without re-icing. Bunkers are available in 2-block and 4-block sizes.



Typical bunker installation
in transport truck

IDEAL FOR ALL TRUCK OPERATORS

The Foster-Built Dry Ice Truck Bunker has proved to be an effective, low-cost means of refrigeration for both fleet and individual operators. Units are easily removed when refrigeration is not required and in fleet operation may be moved from truck to truck.

Foster-Built Bunkers, Inc.
757 W. Polk Street, Chicago 7, Illinois

CCJ

Gentlemen: Please send me fully illustrated, free booklet giving complete information and "case histories" of Foster-Built Dry-Ice Truck Bunkers.

Name.....

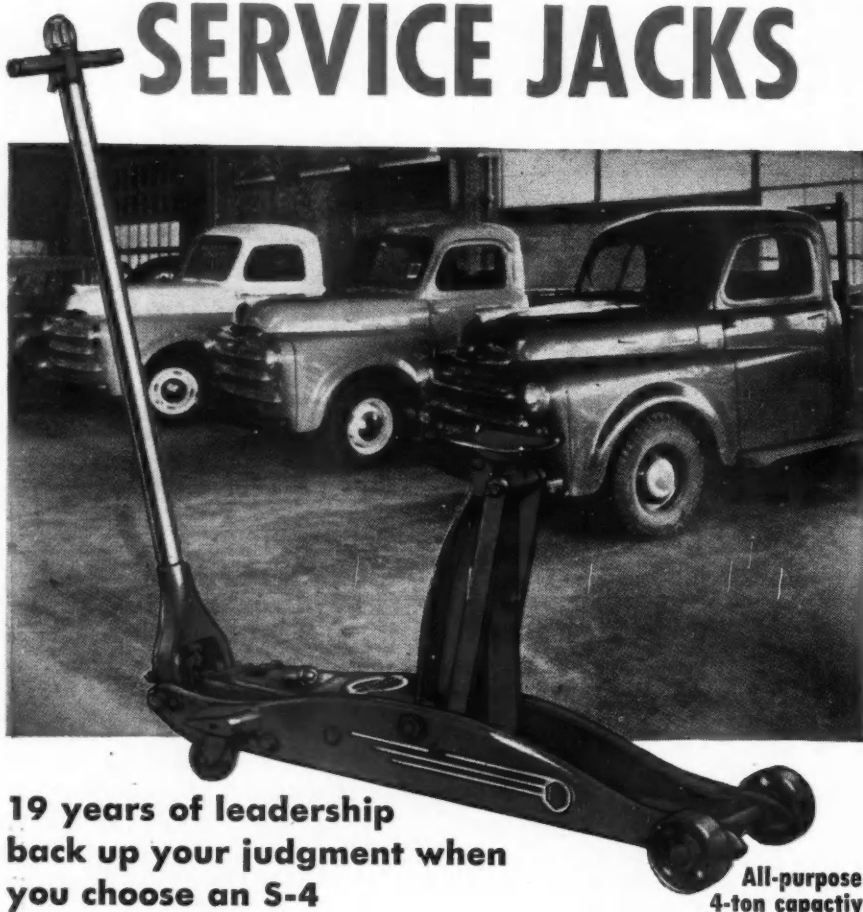
Company.....

Address.....

City..... Zone..... State.....

S-4...

GREATEST 'NAME' IN SERVICE JACKS



19 years of leadership
back up your judgment when
you choose an S-4

All-purpose
4-ton capacity



Take a look at the best known piece of service equipment in the motor vehicle industry! It's the Blackhawk 4-ton Model S-4 Hydraulic Jack. It's the jack that shop men have rightfully learned to trust more than any other jack on the market.

This brute was years ahead when introduced in 1931. No other jack has ever caught up to it. Blackhawk has continually added outstanding, exclusive refinements... so that today, as before, the S-4 is the best all-purpose jack you can roll onto your floor. Your Blackhawk Jobber will deliver one to you — *with full confidence!*

Break Expensive Bottlenecks!
Equip Each Mechanic
with His Own Jack

BLACKHAWK

Blackhawk Mfg. Co., Dept. J1150, Milwaukee 1, Wis.

"PORTO-POWER" • "RECK-RACK" • JACKS • WRENCHES

British Diesel

Continued from Page 128

ards—with a definite bid for greater operating economies.

As we examined each of the exhibits we kept asking ourselves the question we know every fleetman who reads this account will ask: "What do the British expect to gain from the show; just how seriously do they expect to tackle the American market?" We believe the answer lies partly in the announced policy statement that they hope to sell 50,000 passenger cars in the U. S. A. during 1950, about 1½ days' worth of total U. S. production. Along with this they hope to sell some commercial equipment, especially the light Austin and Thames delivery trucks. But the second part of the answer is more complicated; it is based on a wait-and-see-where-the-market-may-develop philosophy. They hope that particularly among their diesel engines may be found the answer to requirements not currently available in this country. The horizontal A.E.C. diesel and the giant but light weight Rover Meteorite might fill such a need along with still other types. The makers realize that no sales would be possible without adequate service provisions, and they expect to make such service available whenever and wherever the markets may dictate.

In all fairness to the exhibitors it should be noted that while the styling of many of the passenger car models appeared obsolete to the American visitor, the signs of meticulous British craftsmanship was everywhere apparent. One cannot help but gain the impression that in whatever field the product is offered, built-in quality is there.

No description of the show would be quite complete without mention of three special exhibits of mutual interest to both the average sightseer and the commercial user. They were the Railton car which John Cobb piloted at 394.2 mph on the Bonneville Salt Flats to set the world's all-time land speed record; the streamlined special "MG" in which Col Gardner set a light car record of 207.4 mph and the brand new Rover gas turbine car, the world's first car with turbine power and still in its experimental stage.

END

Please resume your reading on P. 58

JOB OBSERVATION

Too many people quit looking
for work when they find a job.

*An impressive record
of reliability...*

**MORE THAN 40 MILLION AC FUEL PUMPS
ARE IN USE TODAY**

**MORE THAN 80 MILLION HAVE BEEN BUILT
BY AC SINCE PRODUCTION BEGAN IN 1927**

Fleet operators have found that periodic inspection, with replacement at regular mileage intervals, are all that is required to maintain the complete reliability of AC Fuel Pump performance.

Thousands of vehicle records corroborate this statement.

So far as fuel pumps are concerned, there simply is *no* substitute for the reliability of AC.

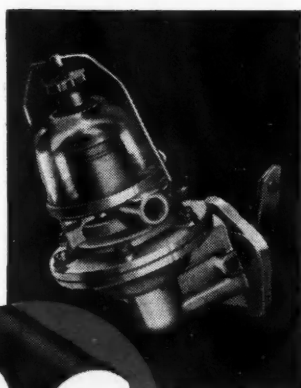


AC
SPARK
PLUGS

preferred on millions of vehicles



AC
OIL
FILTERS



AC
AIR
CLEANERS

preferred on millions of vehicles

AC

**FUEL
PUMPS**

AC SPARK PLUG DIVISION
GENERAL MOTORS CORPORATION

KEEP YOU OUT OF TROUBLE



BOEING TURBINE

Tested for Truck Power

Turbine provides infinitely variable transmission ratios with only a shroud between engine and driven member

Successful preliminary road tests of the first gas turbine-powered truck, using the experimental Boeing 175 hp, lightweight turbine have been conducted by Boeing Airplane Co. Trial runs of the new 200-lb Boeing power plant have been made in a ten-ton Kenworth chassis. The Boeing gas turbine is similar to the jet airplane engine in its general design, but power is harnessed effectively by a secondary turbine to turn a shaft rather than being exhausted as jet thrust.

The new turbine-powered truck is considerably quieter than a conventional diesel truck of equal power. Exhaust gases are approximately the same temperature as those from a diesel or gasoline truck. At idling power, for instance, it is possible to place a hand over the end of the exhaust pipe without danger of being burned. Exhaust gases are almost invisible and without offensive odor. Boeing engineers anticipate the possibility of future development for this lighter and simpler power plant in trucks, tractors and other mobile equipment.

The turbine runs equally well on gasoline, kerosene, light or heavy fuel oil, and has been test run on "bottled" gas. Features of interest to truck and car operators include the elimination of a cooling system, the elimination of much gear shifting, the ability to start and immediately develop full power without the "warm-up" period common to piston type engines, and the impossibility of "stalling" the engine.

The turbine weighs at least 2500 lb less than conventional engine installations of equal power and therefore will provide greatly increased revenue-producing payload for truck operators. This weight reduction, combined with the fact that the new Boeing gas turbine occupies only 13 per cent of the space normally taken by the conventional 200 hp gasoline or diesel engine.

The turbine, aside from small size and light weight, is much simpler in construction than the conventional automotive engine. Although it is a near-sister of the high speed airplane jet engines, new "502" operates on the same principle as the familiar ship

NEAPCO ADDS *a complete line of* CHASSIS PARTS

→ Available, now

YOUR NEAPCO JOBBER HAS
COMPLETE PARTS
INTERCHANGE DATA
IN THIS CATALOG

Ask for the parts you want by car model or by the manufacturer's number. Your jobber can supply the correct Neapco replacement quickly. Remember the new Neapco Line. Ask for it, be sure!



Serving the industry since 1921, Neapco has long been a leading manufacturer of replacement universal joints and parts. All the manufacturing experience and engineering skill developed during these years have been applied to each of these Chassis Parts. The line is complete . . . it is packaged in Neapco's familiar orange box . . . and backed by Neapco's familiar unequivocal guarantee! Now available at all Neapco warehouses.



UNIVERSAL JOINTS

& CHASSIS PARTS

NEAPCO PRODUCTS INC. POTTSTOWN, PA.

**200-lb engine develops 175 hp in road
test with Kenworth truck, 35-ft trailer**

*Installed in Kenworth truck turbine
occupies only 13% of space required
by conventional gasoline engine*

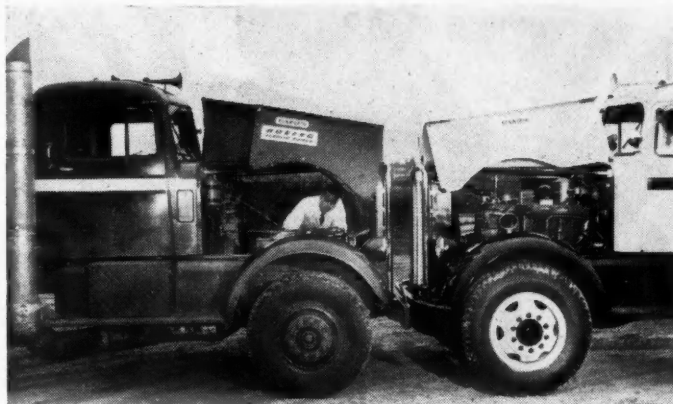
steam turbine, but uses exhaust gases in place of steam to turn the turbine shaft and generate power.

Although externally the experimental truck differs little in appearance from any other truck, production installations could lend themselves to important changes in basic design. The compact nature of this turbine will simplify cab-over-engine and other installations in the higher horsepower classification.

Controls for the gas turbine truck differ but little from those of a conventional vehicle. Starting is accomplished by a standard automobile starter button, which brings the turbine to idling speed. Upon reaching this speed the fuel valve is turned on and the engine operates "on its own." Inasmuch as there is no direct connection between engine and drive shaft, the truck has in effect a "gas drive" transmission, similar to the now familiar "fluid" drive on many cars, except that the fluid is gas instead of oil. A pedal is used for shifting from one gear to another, or for reversing. Speed is controlled with the usual foot throttle.

The engine installation includes a system of power braking, which promises to be of much importance to truck operators in utilizing the power of the engine itself for braking to a much greater degree than is possible with conventional piston-type engines.

Weighing 2500 lb less than regular engine, turbine is quiet and versatile. Exhaust is free from heat and odor

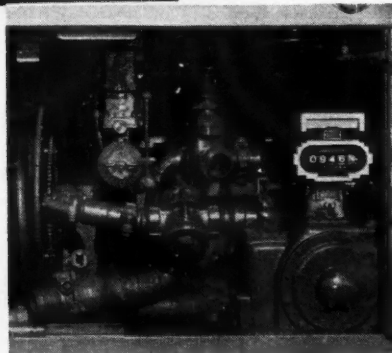


MOBILHEAT TRUCK TANKS Protected by S&J Safety Valves



You would naturally expect any major petroleum marketer to take every precaution in transporting gasoline over city streets and highways, but when you see the same concern handle its less volatile liquids with equal caution, you know that they believe in **SAFETY RIGHT DOWN THE LINE**. The pictures shown here are a case in point.

Here is a typical fuel oil truck operated by Socony-Vacuum Oil Company. It carries MOBILHEAT fuels for domestic and industrial oil furnaces, and Diesel fuels to stationary engine tanks and to truck filling stations. This truck, just as many of their gasoline trucks, is equipped with S. & J. Internal Hydraulic Safety Valves which preclude spillage of liquid in the event of highway accident, and shut off the flow of fuel automatically should a fire occur during unloading operations. S. & J. Safety Valves afford the maximum in safety, and SOCONY believes that if they help make gasoline transportation **SAFE**—they want that same **SAFETY** in hauling their fuel oils.



SHAND & JURS CO.

BERKELEY, CALIFORNIA

NEW YORK

CHICAGO

HOUSTON

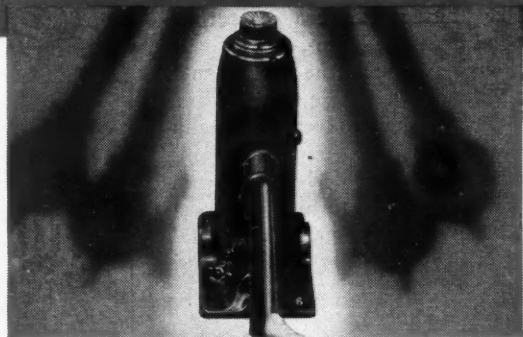
LOS ANGELES

SEATTLE

SHAND & JURS



EASY TO "POSITION"



Lift a Walker "Series 900" by the handle. Immediately and automatically it assumes an upright position. That's because the strong malleable iron handle socket is located in the exact center of the jack well above the center of gravity. Walker Pendulum Balance assures quick, easy "positioning" —saves time, saves tempers.

**6 MODELS FROM 1½ TO 20 TONS CAPACITY
ALSO 2 SUPER-POWER SHOP MODELS
AT 30 AND 50 TONS CAPACITY**

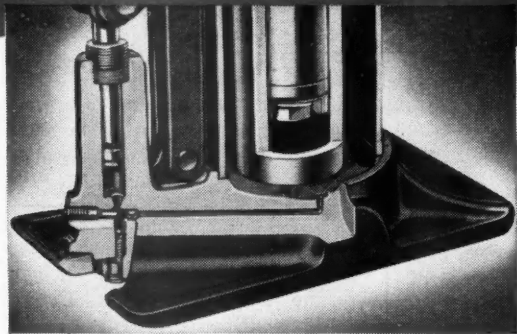


**WALKER
LEADS IN
JACKS**

WALKER

EASY

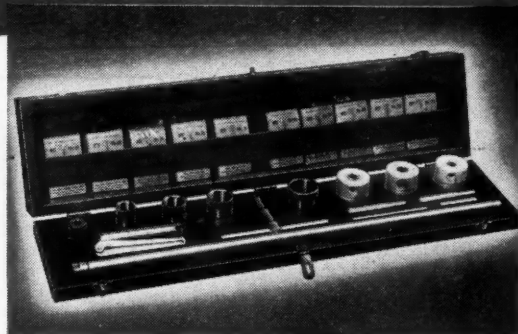
TO OPERATE



Start lifting with a Walker "Series 900." There's no lost motion, no wasted handle strokes. Smooth, dependable lifting power is delivered by the *Ryth-matic* action of the simple, yet scientific, Walker valve design. Suction and discharge valves operate with perfect teamwork, at lightning speed. Closing action is always positive and unfailing.

EASY

TO MAINTAIN



Keep your jacks always ready for action. With Walker "Series 900's" and the Walker Jack Repair System, your own mechanics can maintain and repair your jacks—right in your own shop. All it takes is an inexpensive kit of special Walker tools, a small supply of genuine factory repair parts, and the easy-to-follow instructions.

● Pick up a Walker "Series 900" portable hydraulic. You know immediately you've got a jack with strength and ruggedness for years of long, hard usage. Yet, at the same time, you can't help sense its fineness and precision.

Back of every one of these new, improved tool box jacks are more than 40 years of engineering development, manufacturing "know-how" and gruelling use. Their exclusive features—*improved, refined and trouble-proofed*—are your assurance of safe, dependable performance.

Be sure of speedy, safe, dependable lifting power—whenever and wherever you need it. Equip your fleet with the leader in tool box jacks—Walker "Series 900."

WALKER MANUFACTURING CO. OF WISCONSIN • RACINE, WISCONSIN
WALKER JACKS • ELECTRIC LIFTS • EXHAUST SILENCERS • OIL FILTERS

"SERIES 900" PORTABLE HYDRAULIC JACKS

New Product Descriptions

Continued from Page 84

The fabric in the new G-S Safety Hood is impervious to moisture, most acids, caustics, oils, and solvents and protects against extreme temperature and light metal splashes. Fitted with a large plastic window, the unit is made by General Scientific Co., Philadelphia.

A newly developed inter-liner of molded composition, designed for replacement on automobile leaf springs, is announced by World Bestos, New Castle, Ind.

A compact tire inflation procedure package, containing basic tools and "know-how" for prevention of bleeding hot tires, is designed and offered by A. Schrader's Son Div., Scovill Mfg. Co., Inc., Brooklyn, N. Y.

A new "Husky" direct-action shock absorber conversion kit for Fords, Mercurys and Chevrolets has been announced by the Houdaille-Hershey Corp., Houde Engineering Div., Buffalo, N. Y.

For use on any surface where more than normal protection is needed, End-O-Rust, is a corrosion and oxidation resistant coating, made by the End-O-Rust, Inc., Cleveland, Ohio.

The addition of three new styles of welding gloves to their supply line has been announced by Air Reduction Sales Co., Div., Air Reduction Co., Inc.

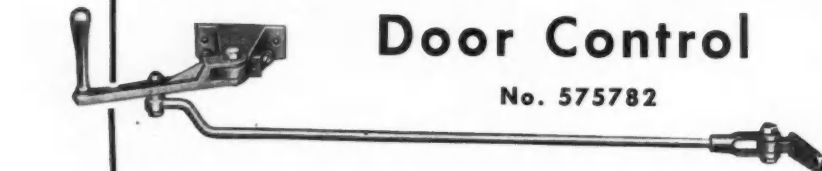
The Eclipse Air Brush Co., Newark, N. J., has developed a new model spray gun with which it is possible to control the width of the spray pattern.

EXTRA SAFETY and SERVICEABILITY in this "NEW" SCHOOL BUS



Door Control

No. 575782



Designed especially for use on School Buses, this new easily operated Door Control incorporates "over center" locking action. Rod length is adjustable 1-1/4 inches. Adaptable to solid or folding doors.

It features a special switch mounting pad for a plunger type switch to operate a step well light or front and rear flasher lights. Switch operated by cam built in handle mechanism. Finish, Plain or Cadmium.

Write for complete information.

This new Eberhard Catalog No. 14 is available upon request. Write TODAY!

EBERHARD *Long Run*
TRUCK BODY FITTINGS

EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co.

EVARTS AVE.

CLEVELAND, OHIO

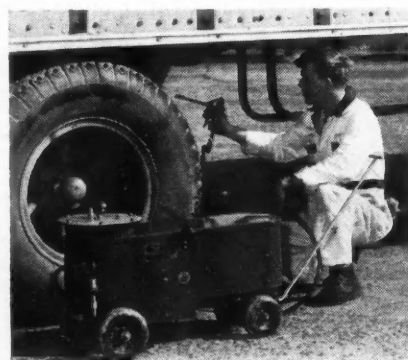
P159. Transmission Jig

A new transmission jig for use in removing and replacing transmissions, replaces the jack saddle and permits the removal of transmissions with vehicle right on floor. It has its own handle so that the regular jack handle can be removed for clearance.

The fixture is universal, providing adjustments to give any desired position. The table has adjustable supporting side rails, stop pins and a high lifting point of 31 1/4 in. Weaver Mfg. Co., Springfield, Ill.

P160. Grease Gun

The portable electric grease gun is a streamlined machine, 23 in. high, 27 1/2 in. long, weighs 230 lb and is mounted on rubber tires. The unit has a self-contained 6-volt battery power, eliminating trailing hose and electric wires. A modified starter motor develops up to 5-hp on the pump through a series of gears running in oil. A thumbscrew adjusts a maximum grease nozzle pressure from 500 to 12,000 psi. The metering hand nozzle can be adjusted to pass a drop or a large shot



of grease. A double check valve clears itself of foreign matter and prevents stoppage.

Built in the nose of the unit is a rectifier and drop cord for recharging the battery. Tests have indicated that

(TURN TO PAGE 138, PLEASE)



**THERE IS NO SUBSTITUTE FOR
Quality, Availability and
Completeness of Line in the
ENGINE BEARINGS YOU BUY!**

1st in QUALITY—You know you do a top reconditioning job, with complete car-owner satisfaction, when you install Federal-Mogul engine bearings!

1st in AVAILABILITY—More and more, the service trade says—"If you can't get it from Federal-Mogul—you can't get it anywhere!"

1st in COMPLETENESS—More than 7,000 items in all—in Federal-Mogul's *complete* engine bearing line!

FEDERAL-MOGUL IS FIRST IN SERVICE!

Ask Your Federal-Mogul Jobber

*The Complete Line—
More than 7,000 Items:*

Engine Bearings (Main, Connecting Rod and Camshaft) • Bushings • Connecting Rod Exchange • Reconditioned Connecting Rods • Rebabbitted Connecting Rods • Connecting Rod Bolts and Nuts • V-Seam Piston Pin Bushings • Bearing Metals • Laminated Shims.

FEDERAL-MOGUL SERVICE • DETROIT 13, MICHIGAN
(Division of Federal-Mogul Corporation)

IN LUBRICATION

**Bet on
a Sure
Thing-**

**CHANGE
TO**

PLASTILUBE
THE SUCCESSOR TO GREASE

COST-MINDED
FIRMS

QUALITY-MINDED
ENGINEERS.....

THEY'RE ALL CHANGING
TO PLASTILUBE,
THE SENSATIONAL NEW
LUBRICANT—
THE SUCCESSOR TO GREASE!

CHECK PLASTILUBE'S FEATURES—
COMPARE IT WITH THE
PRODUCT YOU'RE NOW USING—

- ★ NEVER MELTS
- ★ ALL-PURPOSE
- ★ NON-BLEEDING
- ★ WATER RESISTANT
- ★ BETTER ADHESION
- ★ NO PHASE CHANGE
- ★ COSTS LESS IN USE
- ★ BETTER PUMPABILITY

MAKE YOUR OWN TESTS—MAIL
COUPON FOR SAMPLE TODAY.

THE
Warren
REFINING & CHEMICAL COMPANY
CLEVELAND 15, OHIO

The Warren Refining & Chemical Company

DEPT. GC2

CLEVELAND 15, OHIO

Rush my sample of PLASTILUBE

New Product Descriptions

Continued from Page 136

it will grease about 5000 fittings before the battery must be recharged. The charging current automatically drops as the battery builds up and a complete charge can be obtained in 24 hr. Brown Grease Gun Co., Charlotte, N. C.

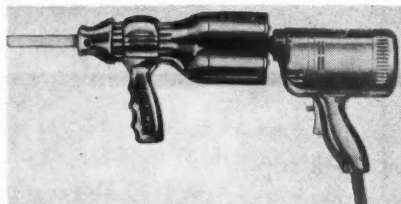
P161. Dry Ice Bunker

The new dry ice bunker, called the "Super Cold Shot Bunker," is designed for refrigerating door-to-door delivery trucks carrying both frozen and unfrozen loads. It features a dual air-flow design that forces air into contact with the dry ice twice for extra refrigeration before circulating the super cold air throughout the truck body. This design principle assures a quick shot of super cold air which will offset cold loss due to frequent door openings on route trucks.

The bunker may also be used on interstate transport haulers and is available with capacities for carrying two and four 50-lb blocks of dry ice. Foster-Built Bunkers, Inc., Chicago, Ill.

P162. Saw-File Gun

This Saw-Gun, powered by a drill or flexible shaft, will cut or file metal or wood. For cutting, a hack saw blade is inserted in the holder with teeth toward operator, so saw cuts on the pull-stroke. When power is applied,

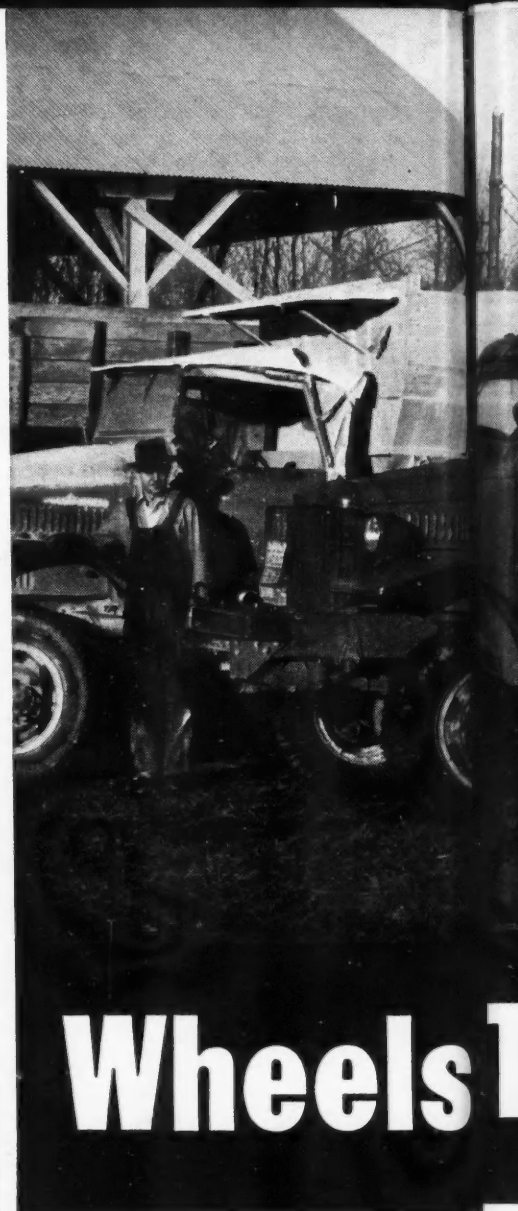


the blade cuts with a rapid 7/8-in. stroke and leaves no jagged edges. For filing, an ordinary file is inserted in the holder, locked tight and power applied. It has a detachable handle and is light in weight. Mid-States Welder Mfg. Co., Chicago, Ill.

P163. Paint Steam Boiler

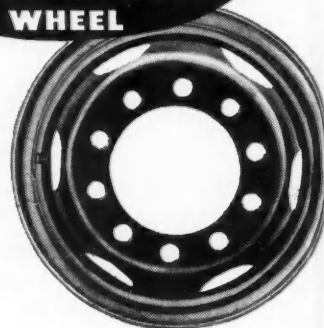
The Speedyelectric SP500, an all-electric steam power plant for development of paint-spraying steam is complete with built-in 100 psi boiler, A. S. M. E. Code, National Board inspected and stamped, Underwriters' Laboratories listed. The SP500 in-

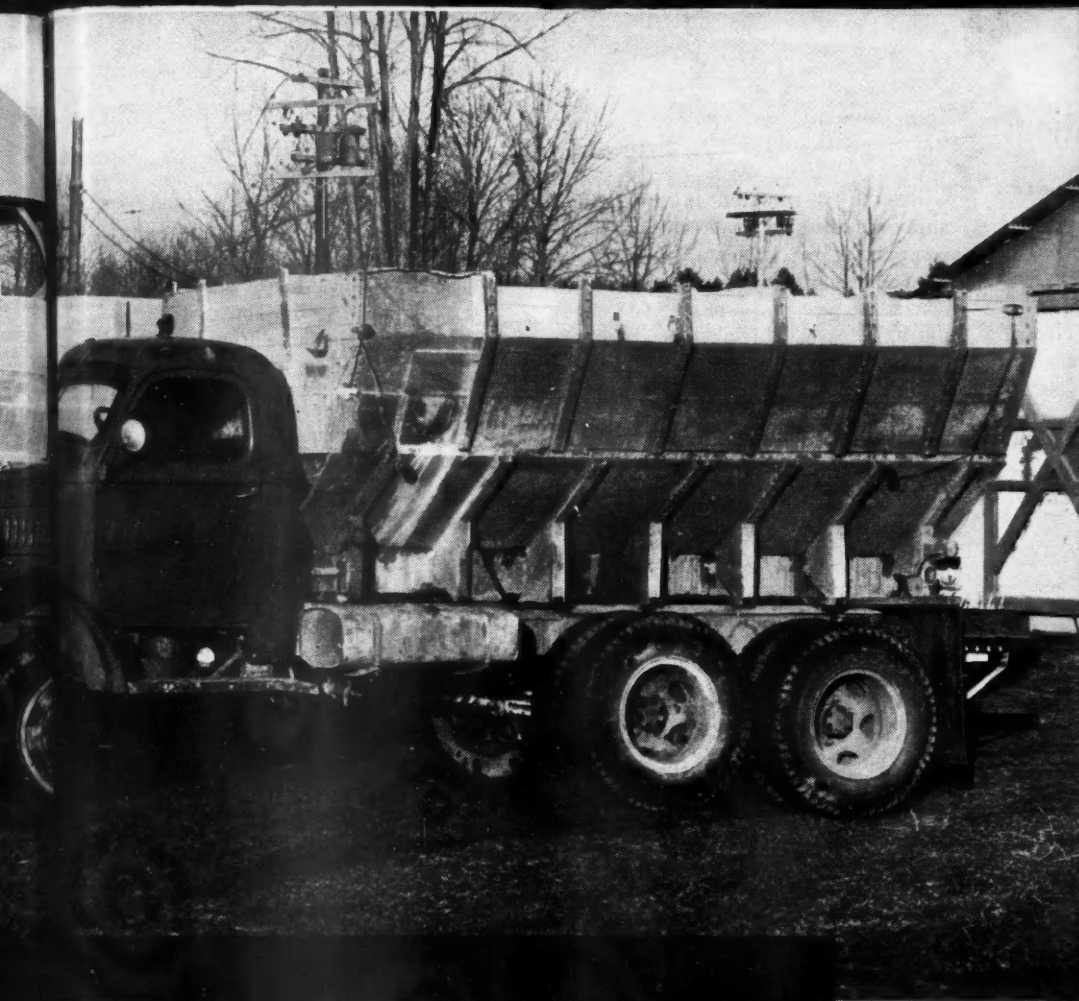
(TURN TO PAGE 140, PLEASE)



Wheels

Look for
this label
(in red, blue
and gold)
on the rim of all
genuine
Budd Wheels





s That Float...

"You ought to see what happens to a 12 ton load of lime when the spreading trucks hit a soft plowed field," writes Al Codemo of Six Robbles' Inc., Portland, Oregon, Budd wheel distributor.

"Mr. W. H. Taylor of Oswego, Oregon is in the business of hauling lime and spreading it on plowed fields at various farms. Putting loaded lime trucks right down to the axles in mud was nothing uncommon in his operation. The time lost in 'un-bogging' these trucks was giving Mr. Taylor plenty of headaches. Blow-outs on the road were extremely high, as well.

"He was using 8.25—20 tires on 20 x 5.00 wheels," Mr. Codemo writes, "and after looking over the situation, we suggested a changeover to Budd wheels with wide base rims, using 9.00—20 tires on 20 x 7" wheels. Results were even better than expected."

Now Mr. Taylor reports, "Flotation on the job has increased by about 40 per cent (we were able to check this by comparing our flotation with other trucks operating in the same fields, using standard rim sizes), tire mileage is up 35 per cent and blow-outs have completely disappeared. And I seem to have acquired another business," Mr. Taylor chuckles, "that of pulling the trucks of a competitor out of the mud when they bog down."

You'll find a complete list of Budd Wheel distributors on this page. If you have a problem that a little imagination and the right wheel can solve, why not call on the Budd Wheel man nearest you? He is an expert in prescribing the right wheels for the right job and carries a *complete* line—the only complete line with advanced rims. The Budd Company, Detroit 14.

Budd Wheel Distributors provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Harris & Sons, Inc.
BIRMINGHAM—Cross-Crawford Wheel & Rim Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.
CHARLOTTE—Caroline Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Wheel & Rim Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Berbain, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MINNEAPOLIS—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Pearle Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robbles', Inc.
PROVIDENCE—New England Wheel & Rim Co.
RALEIGH—Caroline Rim & Wheel Co.
RICHMOND—Dixie Wheel Co.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Harc-Jarvis Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robbles', Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.
SPRINGFIELD, MO.—Berbain, Young & Co.
ST. LOUIS—Berbain, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robbles', Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Berbain, Young & Co.

EXPORT

CLEVELAND—C. O. Brando, Inc.

CANADA

CALGARY—Fish Tire Service Ltd.
EDMONTON—Alberts Wheel Distributors, Ltd.
MONTREAL—General Automobile Equipment Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.

New Product Descriptions

Continued from Page 138

cludes an electric superheater with thermostatic control and boiler feed pump, motor, and controls. The boiler is self-regulating, maintaining electric input in exact balance with steam output. The boiler is now available in a range of capacities from 1 to 10 spray-guns or larger. Operates on 220, 440, 550 volts AC single or polyphase. The unit is without flame or fire hazards,

free from all low water danger and has no coils or tubes to burn out, to scale or replace.

Results of research in the field of spray painting using steam instead of compressed air indicate one pass application for 2 mils of film, increased efficiency (less overspray) and lower finishing costs. Livingstone Engineering Co., Worcester, Mass.

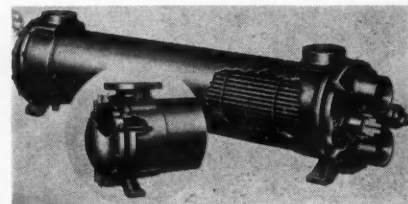
P164. Adjustable Mirror

An outside truck mirror that can be folded out of the way by the driver

is said to be responsible for reduced mirror breakage. It can be moved either backward or forward and when returned to the previously used position it is still in focus. If it should strike an obstruction, the hinge will release and fold back without breaking. Made of cadmium plated steel, this unit is adjustable from 16 to 28½ in. and has a 5-in. clear glass mirror. Mosby Mfg. Co., Minneapolis, Minn.

P165. Heat Exchanger

Standardized exchangers, featuring all-purpose, removable tube bundle construction, are available in a broad range of sizes. Redesigned, they em-



body a larger transfer surface. A smaller unit now serves the same condition that formerly required larger sizes. Ross Heater Mfg. Co., Buffalo, N. Y.

P166. Refrigerating Unit

A new self-contained 1-ton truck refrigeration unit weighing 325 lb is designed to permit easy installation through a rectangular opening in the forward wall of the truck body. The unit is held in place with four mounting bolts with the evaporator section extending into the truck body interior.

With only one major moving part, it is powered by the truck engine. The unit is fully charged and run-in tested in the factory. No refrigeration skill is needed to make the installation, according to the manufacturer.

The unit has sufficient capacity to handle perishables in truck bodies of from 10 to 16 ft in length. Thermostatic control and automatic defrost are featured in this design. Coldmobile Co., Detroit, Mich.

P167. A. C. Welder

A new AC for "Heliarc" welding with field-tested hydraulic amperage control enables the operator to make instant amperage changes without leaving the work and without breaking the arc. The amperage can be changed from minimum to maximum or vice versa, within a few seconds. The operator can make as little change, as slowly as the application demands at

(TURN TO PAGE 142, PLEASE)



Equip Your Fleet with DEPENDABLE AMERICAN HYDRAULIC JACKS

—and Eliminate Costly Delays
Due to Jack Failure!

Drivers prefer American Giant-Lift Hydraulic Jacks because they are so easy to operate—and so dependable. Every American Jack is tested to lift 1½ times its rated capacity. Removable pump unit at angle centers special steel lifting ram. Centrally located handle socket and release valve for easy positioning, positive control. Sizes from 1½ to 30 tons. Compare—and you'll standardize on American Giant-Lift Jacks.



Order from your dealer... or write
for complete information!

Address Dept. 5C.

You Can Depend on AMERICAN

AMERICAN HYDRAULICS, Inc.

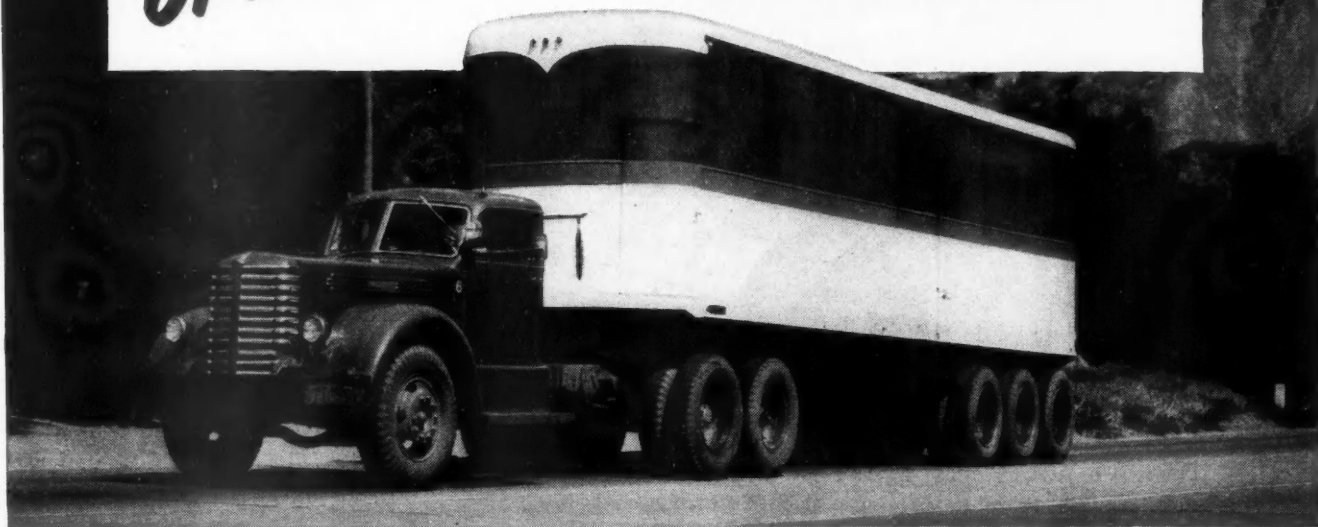
SALES OFFICE: 203 NO. WABASH AVE., CHICAGO 1, ILLINOIS
FACTORY: SHEBOYGAN, WISCONSIN

Canadian Distributor: VIC MATHEWSON CO., LTD., TORONTO
HYDRAULIC JACKS: 1½ to 30 Tons Capacity • HYDRAU-TOOLS for Body and Fender Work



**FLEET
OPERATORS!**

**Banish Fuel Waste
and Power Loss**



A NEW, QUICK AND EFFECTIVE ENGINE MAINTENANCE PROGRAM!

Results are scientifically checked!

HERE'S HOW IT WORKS. First the crankcases of all fleet units are drained. Then the Cities Service internal engine cleanser, Cisco Solvent, is used to flush out harmful sludge, dirt and power-robbing deposits. The crankcase is then refilled with the correct type and grade of Cities Service motor oil. Next comes the Cities Service Power Prover test. This remarkable instrument is an exhaust gas analyzer. It quickly and accurately determines the exact combustion efficiency of any four cycle gasoline engine. With this information, necessary adjustments can be made easily.

Results are Fast!

From then on, all drivers are alerted to oil contamination. The proper oil change period is set up for each unit in the fleet depending upon the age, operating conditions and rate of oil consumption. The Cisco Solvent treatments are repeated after every second oil change. The Power Prover tests are made at scheduled intervals between oil changes to detect combustion changes before they can do any damage.

This Cities Service "clean engine" maintenance program has shown lower operating costs per mile

... lower gasoline consumption and reduced maintenance and repair expense.

A Cities Service representative will be glad to put this program in operation on your fleet (in all Cities Service marketing territories east of the Rockies). Talk to the Cities Service representative nearest you.

If your fleet includes diesel engine units, write today for our new 64 page booklet on Diesel Engine Lubrication. It's absolutely free. Write: Cities Service Oil Company, Room 598, Sixty Wall Tower, New York 5, New York.

A complete new line of automotive lubricants, comprising: REGULAR, PREMIUM and HEAVY DUTY MOTOR and DIESEL ENGINE OILS, REGULAR and MULTI-PURPOSE GEAR OILS and GREASES.

CITIES



SERVICE



**QUALITY PETROLEUM
PRODUCTS**

New Product Descriptions

Continued from Page 140

the work by a reversible foot switch.

The welders are supplied in three amps ranges—10 to 200 amps, 10 to 400 amps, and 10 to 700 amps. The "A" models have two foot switches. Power and high frequency are controlled by one switch and amperage by the other. The "B" models have only one foot switch for controlling the

amperage. Miller Electric Mfg. Co., Appleton, Wis.

P168. Fire Extinguisher

A new cartridge-operated water type fire extinguisher with stainless steel shell is claimed to have numerous advantages over the riveted-copper, soda-acid type. Eliminated is the annual cost and nuisance of recharging. The carbon dioxide pressure cartridge need be replaced and the water replenished only if the extinguisher is discharged.

When the extinguisher is turned upside down and struck on the floor, the gas, contained in the cartridge fitted into the extinguisher cap, is released inside gradually and a steady 40-ft stream results. Carbon dioxide as an expellant eliminates mixing soda and the hazard of acid. Pyrene Mfg. Co., Newark, N. J.

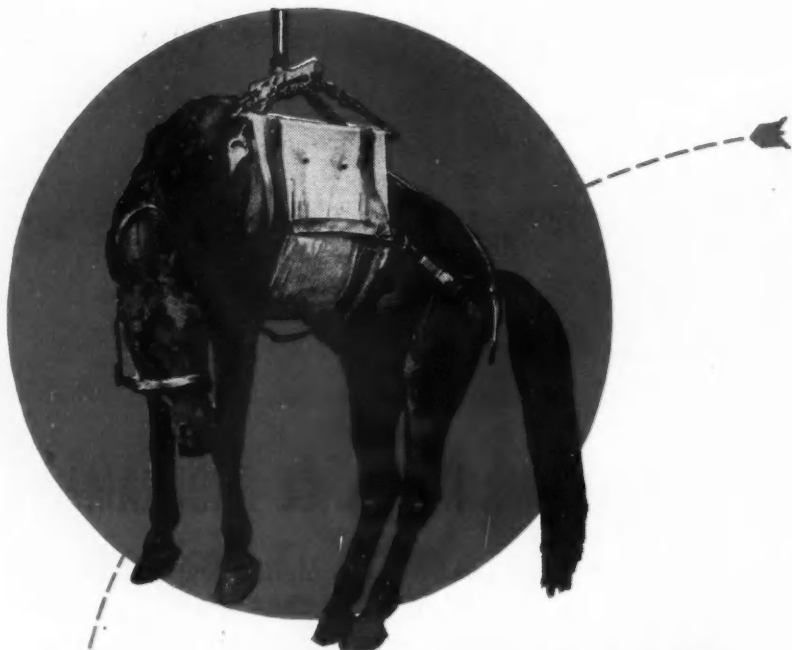
P169. Two-Way Radio

This 10-watt mobile radio transmitter receiver is designed for adjacent channel operation in urban and metropolitan areas. Features include triple-tuned transformers for extra high selectivity, peak audio output of 2 watts, adjustable IF gain control, and built-in low pass harmonic filter that reduces interference to other services, including television.

Component parts in the new unit are easily accessible, enabling adjustments when necessary in the field. The new unit weighs only 32 lb. General Electric Co., Syracuse, N. Y.

P170. Refrigerator Unit

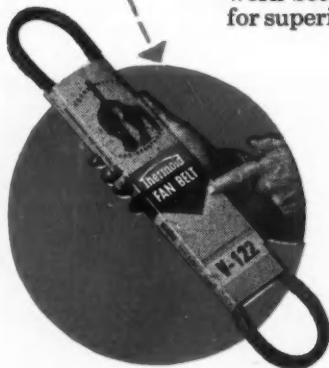
This refrigerator unit is designed with an intake duct which draws in warm air from the top or ceiling of the truck and circulates it through the ice area. This cool air is forced out along the floor of the truck. Water ice is used as a cooling medium since its high moisture content will not cause dehydration. Because of the patent de-



Worth Hanging On To

Anything you can get hold of that helps cut maintenance and operating costs these days is worth hanging on to. Thermoid *Pre-Stretched Fan Belts*, for example. Pre-stretching prevents slipping—checks fan belt failure before it starts. To show how effectively the Thermoidized Pre-Stretching Process assures perfect fit and tension at all times, the weight of a 1500-pound horse was suspended from a Thermoid Pre-Stretched Fan Belt. The belt was then returned to service in the car from which it had been taken and *it worked perfectly at the original adjustment*. That's why Thermoid Fan Belts are a "horse of a different color"—they last longer, work better, cost less in the long run. Specify *Thermoid* for superior performance under all operating conditions.

One Line—The Top Quality Line



Thermoid

Brake Linings • Fan Belts • Radiator Hose •
Hydraulic Brake Parts and Fluid • Car Mats
• Clutch Facings • Thermoid Precision Process
Equipment

Thermoid Company

Trenton, N. J.

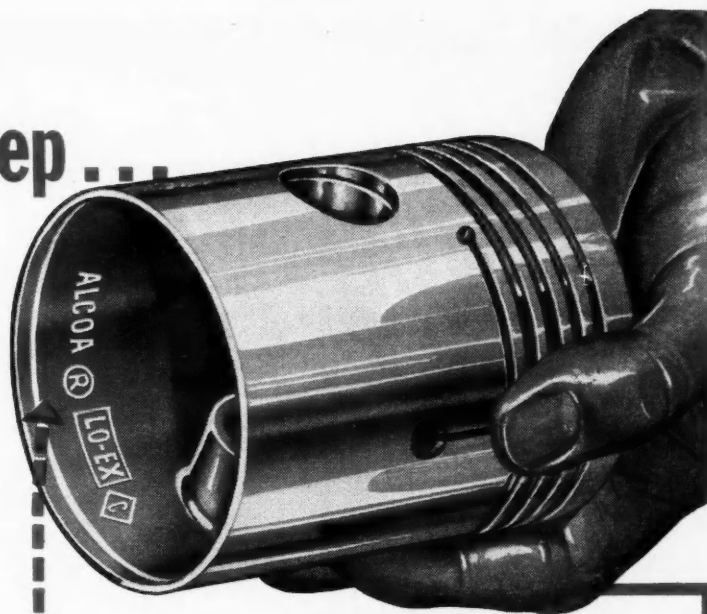
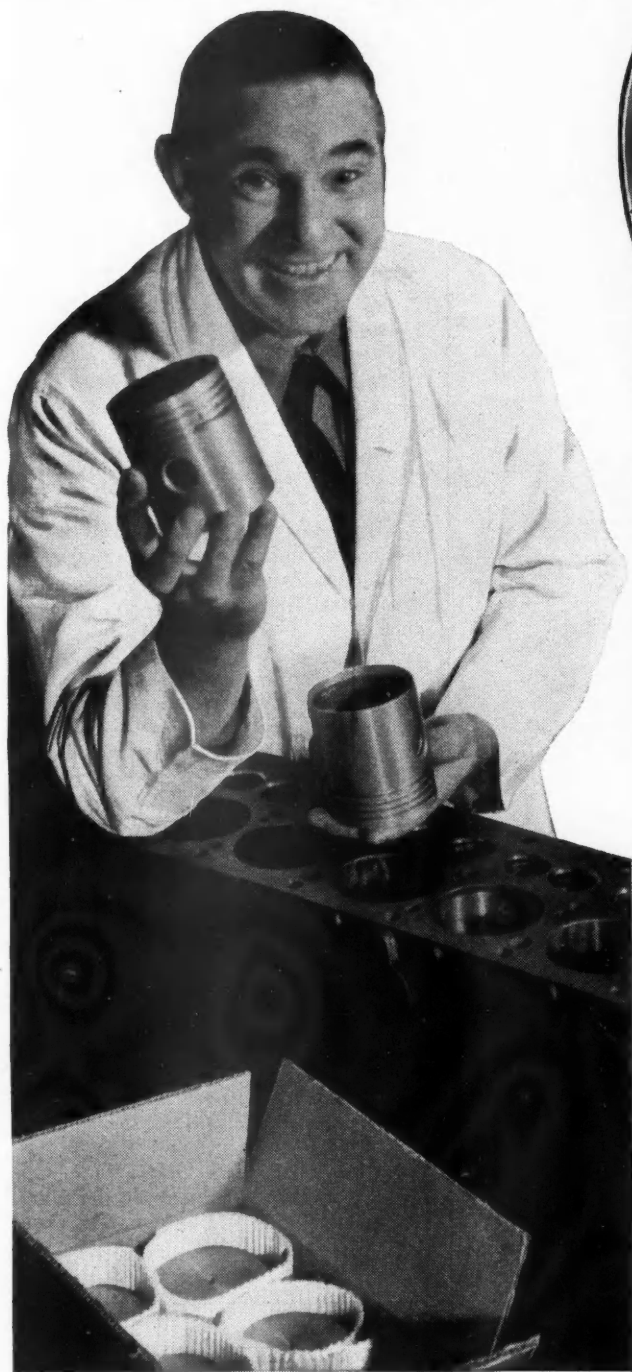


sign of the unit, dirt, bugs, etc., are forced out through the drain pipe by the meltage runoff.

Units are supplied with complete motor, ducting, flue, etc., ready for immediate installation. No extra generator is required since they operate from the truck battery, using approximately the same amperage as an ordinary truck heater. Available in five sizes for trucks from 150 cu ft up to 700 cu ft capacity, the units can be installed by any mechanic within an hour. Air Induction Corp., New York, N. Y.

(TURN TO PAGE 144, PLEASE)

for "new-engine" pep...



repower with pistons of **ALCOA LO-EX**

There's plenty of economical power left in many a lazy, old engine. Put it to work! Repower with aluminum pistons marked ALCOA LO-EX!

Experienced fleet men count on this familiar trade name as their guide to tough, heat-treated aluminum pistons, made of low-expansion alloy. They know it means a close piston fit with full compression. Because ALCOA LO-EX dissipates heat rapidly, engines run cooler, quieter. No hot spots to thin out lubricants!

Get more haul per overhaul! Insist on pistons of ALCOA LO-EX, cast by Alcoa, finished by famous piston makers. ALUMINUM COMPANY OF AMERICA, 1847E Gulf Bldg., Pittsburgh 19, Pennsylvania.



Aluminum Pistons of **ALCOA LO-EX**

New Product Descriptions

Continued from Page 142

P171. Hand Truck

A new truck used either as a hand truck or as a flat-bed truck carries a light flat-bed frame with 5-in. casters hinged to a conventional-type hand truck. For use as a flat-bed, this hinged frame folds down and the handles lock for pushing. Capacity is rated at 500 lb, weight 46 lb, base length 36 in. as a flat-bed, with base width of 16 in.,

over-all length 50 in., hand-truck wheels are 6 in. All wheels are rubber tired and swivel action of flat-bed casters permits easy steering. Construction is of welded steel throughout. Cam Tool Co., Oakland, Cal.

P172. Fork Lift

The 4000-lb and 6000-lb capacity Motowlifts are dual-pneumatic tired models with the power plant a Ford 6-cylinder industrial engine of 226 cu in. displacement. Component parts are

said to be larger and stronger than customary. A heavy-duty integral drive axle and constant mesh transmission by Timken is provided, together with a special Borg-Warner clutch. A single lever control for lifting and tilting and a single level automotive type gear shift is featured.

The lifts have mast channels formed from 3/4-in. extra strength steel. Carriage is equipped with eight hardened, anti-friction rollers, and the two lifting chains have a strength of 24,000 lb each. Service Caster & Truck Corp., Albion, Mich.

**If You Work
with Metals**



... There's a spot in your shop for this time- and money-saving PREST-O-WELD combination. For the W-111 Blowpipe easily handles any welding job—from light sheet to thickest casting—and makes fast work of all ordinary heating and forming operations. The CW-111 Cutting Attachment adapts it for cutting and shaping steel up to 4 inches thick, or for groove-cutting.

Since the Cutting Attachment and 17 different lengths of welding heads all fit the same blowpipe handle, a switch from welding to cutting or back again is as simple and quick as changing a welding head. No time is lost. You're always ready for any job that comes up.

Your nearby PREST-O-WELD Jobber will be glad to show you how this apparatus helps to cut costs, reduce equipment inventories, and boost production. See him today.

PRESTOWELD
Trade-Mark

The term "Prest-O-Weld" is a registered trade-mark of Union Carbide and Carbon Corporation.

Order from your local Jobber

There's a PREST-O-WELD Jobber near you. If you don't know him, write us. The Linde Air Products Company, 30 East 42nd Street, New York 17, N. Y.

Late Product Flashes

A safety wheel block that blocks the vehicle securely and warns oncoming traffic with its bright, luminous red reflector, is a product of the Farmers Tool and Supply Co., Denver, Col.

A vibration-proof fastener called the Southco Spring-Grip Fastener employs a spring as a thread. It is manufactured by the South Chester Corp. of Philadelphia.

A new highway marking paint makes use of a high styrene-butadiene synthetic resin, Pliolite S-5. The paint is manufactured by the Chemical Div., Goodyear Tire & Rubber Co.

Factory-matched colors for the paint shop are now being produced by Acme White Lead and Color Works, Detroit, Mich.

Supersite, New York, N. Y., is marketing DU-OL, a rust disintegrating, penetrating and motor tune-up fluid.

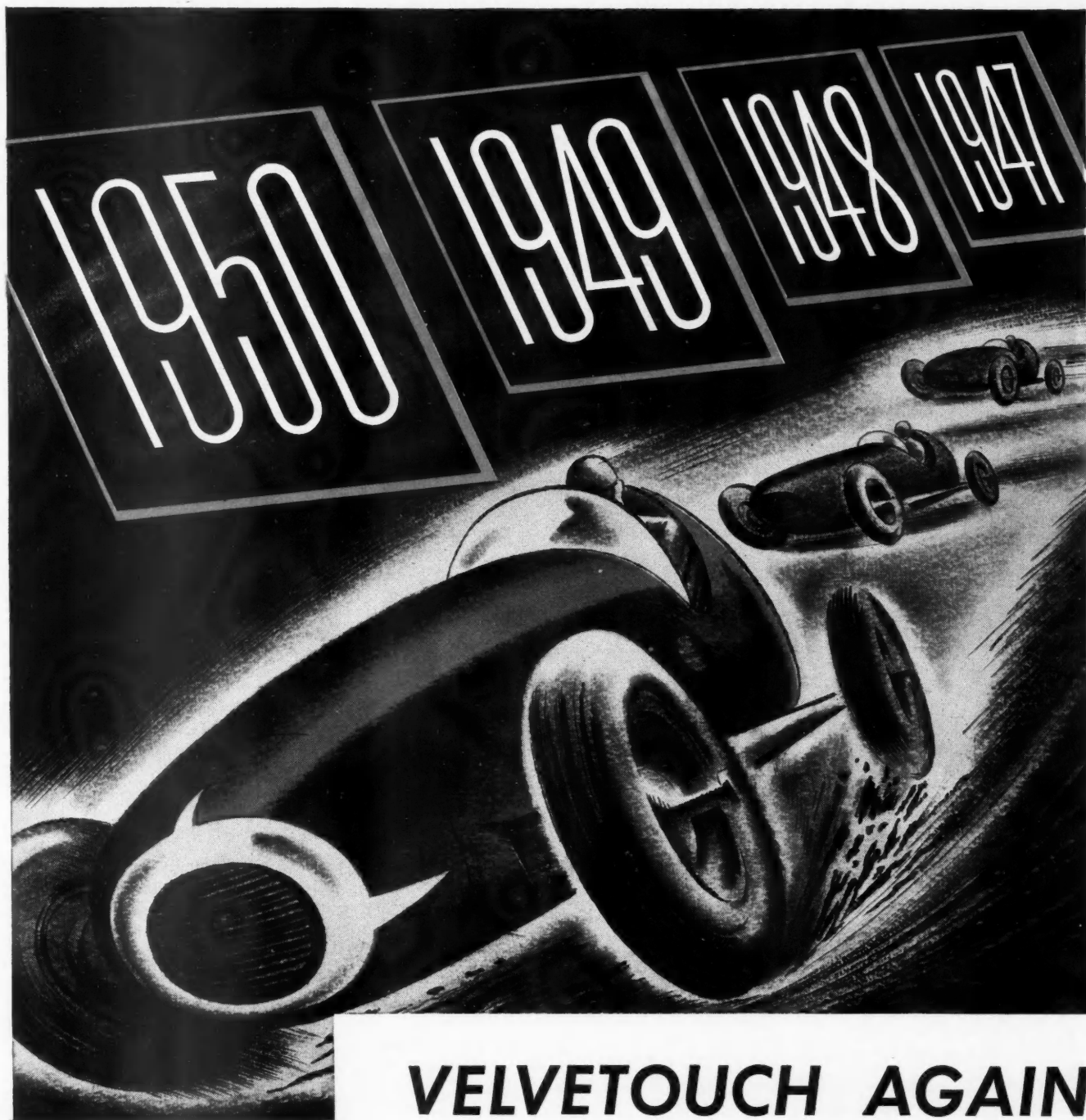
Auto Lamp Mfg. Co., Chicago, is now marketing its finger tip control light switch for front and rear directional signals in a newly designed package.

A new 3/8-in. drive "junior" Ratch-A-Daptor is being introduced by the Herbrand Div. of the Bingham-Herbrand Corp.

P173. Radio Tester

A new test instrument suited for servicing automobile radios, 2-way radio communication systems or any piece of equipment using 6-volt vibrators, is known as the Model AR-3 vibrator analyzer and power supply. This instrument combines an adjustable power supply that provides direct current in any voltage needed to bench test automobile radios, with a vibrator an-

(TURN TO PAGE 146, PLEASE)



VELVETOUCH AGAIN

THE S. K. WELLMAN CO. WAREHOUSING CENTERS

ATLANTA . 119 14th St., N. E.
BOSTON . 171 Brighton Ave.
CHICAGO . . 2800 S. Parkway
CLEVELAND . 1392 E. 51st St.
DALLAS . . . 3407 Main St.
LOS ANGELES 1110 S. Hope St.
PHILADELPHIA 97 E. Montana St.
PORTLAND 636 N. W. 16th Ave.
SAN FRANCISCO 424 Bryant St.
TORONTO, ONTARIO, CANADA

The S. K. Wellman Co., of
Canada, Ltd. 2839 Dufferin St.

WASHINGTON, D. C., OFFICE
1101 Vermont Ave., N. W.

For three successive years, winners of the Indianapolis "500" have used Velvotouch all-metal clutch facings. And it looks like another Velvotouch victory in 1950 . . . for most of the starters (it was thirty out of thirty-two in '49) will again be Velvotouch equipped. Such overwhelming preference is the direct result of superior performance . . . the kind of per-

formance you'll also find in Velvotouch truck clutch plates. They're designed right to cut your maintenance worries . . . and they're all-metal constructed to give you lowest cost-per-mile operation. Write today for descriptive bulletin about Velvotouch . . . best in the "500", and best for you. ✓

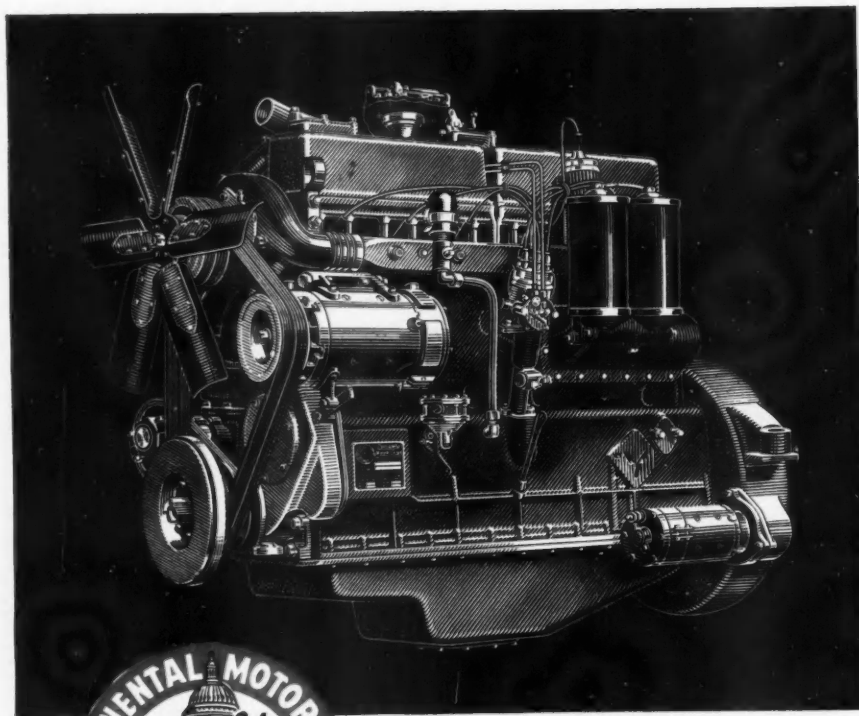
THE S. K. WELLMAN CO • 1374 E. 51st St • CLEVELAND 3, OHIO



Velvotouch

over 25
years of service
1924 • 1950

THERE'S A RED SEAL ENGINE FOR EVERY TRANSPORTATION JOB



S-6749 TRANSPORTATION ENGINE

Built for heavy-duty service. 250 h.p. at 2600 r.p.m. Six cylinders, overhead valves. Heat-treated, pressure-tested block and head. Exclusive Continental system of individual porting. Full-length water jackets with directed coolant flow. Tocco-hardened crankshaft journals. Leakproof water pump. Write for Bulletin TS48749.

Continental Motors' line of transportation engines is both diversified and complete. There are 24 different models, with net usable horsepower ranging from 10 to 230. Red Seal built-for-the-job power is available for automobiles—taxicabs—city, school and interurban buses—highway trucks, tractors and street maintenance equipment—fire-fighting apparatus—door-to-door delivery units—industrial trucks of all types—and virtually all other vehicles for highway and off-highway use. Red Seal engines are built in L-head and overhead-valve types, and for use with butane and Diesel fuel as well as gasoline.

Conversion to Continental Red Seal can be made with minimum installation changes. In writing for further details, kindly mention specific application.

Continental Motors Corporation
MUSKEGON, MICHIGAN

New Product Descriptions

Continued from Page 144

alyzer that will test practically all types of synchronous and non-synchronous vibrators found in automobile radios.

It measures starting voltage, current consumption, output voltage and indicates irregular or intermittent operation. In addition, provision has been made so that a standard oscilloscope can be attached to the vibrator analyzer for wave form observation. Over-voltage is available for starting vibrators with oxidized contacts, and rectifier tubes types 6X5 and 0Z4 can also be checked. Schauer Mfg. Co., Cincinnati, Ohio.

P174. Chassis Parts

A complete line of chassis parts, kits available in standard packages, feature a simplified cataloging method. Correct replacements can be determined at a glance from the catalog whether mechanics ask for parts by car model or manufacturer's number. All replacement kits for each car and model are shown in one listing across the page of the book. Complete interchange data is also included with car models from 1934-50 listed. Neapco Products, Inc., Pottstown, Pa.

P175. 3/4-Ton Hoist

This hydraulically powered shop or truck hoist can be used on a 3 wheel tubular steel floor frame, or be quickly converted for use on truck beds, work benches and loading docks. It will lift



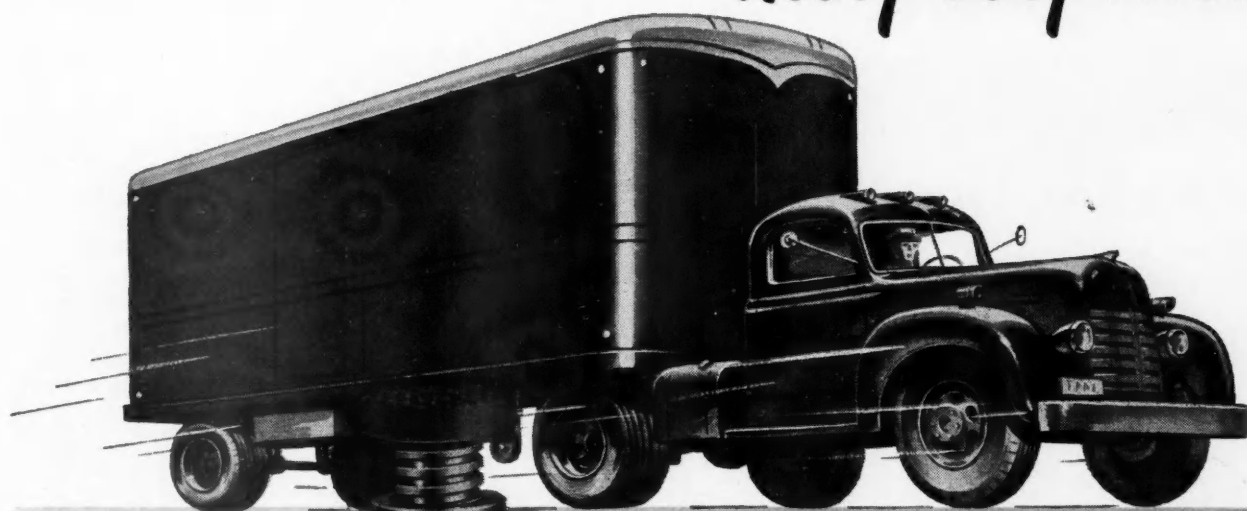
a 3/4-ton load 77½ in. in 45 sec and by using a short hook-up, 2000 lb can be lifted 52 in. in 45 sec.

A double-action, hand-operated hydraulic pump powers the hoist. The

(TURN TO PAGE 148, PLEASE)

Rugged!

Hein-Werner Hydraulic Jacks Are Built for Heavy Duty Fleets



12 TON MODEL

From ram-head to base, a Hein-Werner Hydraulic is a "truck driver's jack"—fast, safe and sure.

Hein-Werner Jacks have extra-strength, pressure-tested malleable iron base, handle and top nut to reinforce at points of greatest strain. Models of 30-ton and greater capacity have solid steel base. They're precision made throughout, with exclusive Heinite Piston, proven to withstand ten times the wear of conventional cups or packings.

Every H-W Jack is factory-tested at $1\frac{1}{2}$ times rated capacity. Compare Hein-Werner with any other jack for quality and price . . . you'll be convinced it can't be beat. Made in models of $1\frac{1}{2}$, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity.



HEIN-WERNER manufactures Bumper-Lift Hydraulic Jacks for passenger cars . . . Under-Axle Jacks for trucks and buses . . . Cylinder Sleeve Pullers . . . Hydraulic Utility Units . . . Swift-Lift and Service Jacks for shop use.

HEIN-WERNER CORPORATION • WAUKESHA, WIS.

CCJ News Reports

Continued from Page 27

battle in defense of private carrier rights now looms, before the Federal Courts.

Through a civil action just filed with the Federal District Court for the Eastern District of Virginia, Richmond Division, three common carrier truck lines, Brooks Transportation Co., Inc.; A B & C Motor Transportation Co., Inc., and M & M Transportation Co., as joint plaintiffs, have instituted legal action

1950 Domestic Truck Factory Sales by G.V.W.*									
	5,000 lb. & Less	5,001-10,000	10,001-14,000	14,001-16,000	16,001-19,500	19,501-25,000	Over 25,000	Total	
January.....	39,282	19,251	6,804	13,093	2,774	1,721	1,459	84,394	
February.....	39,829	17,151	6,032	11,739	2,771	2,106	1,511	90,939	
Total ... 2 Mos., 1950	79,111	36,402	12,836	24,832	5,545	3,827	2,970	165,293	
Total ... 2 Mos., 1949	64,717	51,240	16,326	33,508	6,902	4,547	2,582	179,822	

*—Automobile Manufacturers Association.

against the United States of America and the Interstate Commerce Commission seeking to "enjoin, vacate, set aside, or annul" the orders of the ICC in the celebrated Lenoir and Schenley proceedings.

In their 13-page complaint with numerous appendices, the common carrier truck lines contend that the Commission committed an "error of law" in holding that the motor vehicle operations of the Lenoir Chair Co. and the Schenley Industries, Inc. "are not and would not be those of a common or contract carrier as defined in the Interstate Commerce Act." The complaint goes on to state that the for-hire carrier plaintiffs are being "deprived of opportunity to compete on equal terms" with Lenoir and Schenley for the respective traffic involved and that the trucking facilities of Lenoir and Schenley give them a substantial advantage over the operations of the plaintiff transportation companies to the "great damage and irreparable injury of plaintiffs for which they have no plain, complete and adequate remedy at law."

Note on Refrigeration

An article in the March issue, page 76, dealing with increased refrigeration efficiency through the use of dry ice bunkers is, as far as we know, factually correct except for a reference to water ice refrigeration in the lead paragraph. While water ice is not commonly acceptable for the refrigeration of ice cream and deep frozen foods, it is, of course, highly satisfactory and widely used in the cooling of fresh meats, vegetables and other products requiring medium refrigeration in the 40 to 50-deg range.

Class I Freight Up

The volume of intercity tonnage transported by Class I intercity motor carriers of property in 1949 climbed 4.4 per cent above the volume hauled in the preceding year, to establish an all-time record, according to statistics compiled by the Department of Research of the American Trucking Associations, Inc.

Liability Rates Increased

Liability insurance rates for automobile drivers under 25 were increased about 20½ per cent under revised schedules of rates effective in 23 states on March 20. Under the new rates, in Maryland for example, it costs a driver under 25 years of age \$67.50 a year for \$5/10/1,000 public liability protection. For those 25 and over \$42.00.

(TURN TO PAGE 152, PLEASE)



HERE's the fastest-selling marker light today! Arrow's handsome streamlined Marker Light snaps up the appearance of any vehicle. More than that, it meets I.C.C. and State specifications . . . may be used on corner installations in place of two lights; may be mounted on fenders as parking lights.

Superbly constructed, with glass lens that will not scratch or fade. Easily and quickly mounted. Comes in three standard base designs to fit practically any body curvature: flat, 1/4" curve, or 7/16" curve. Rubber mounting gasket makes tight fit, prevents vibration. Choice of three finishes — black, chrome, or satin; and six lens-colors — blue, green, amber, clear, moonstone, or red.

There are a number of other Arrow marker lights — brackets, flush-type, or armored — designed for every conceivable purpose. All of them are built to give years of trouble-free performance. See your jobber salesman today.



ARROW SAFETY DEVICE COMPANY



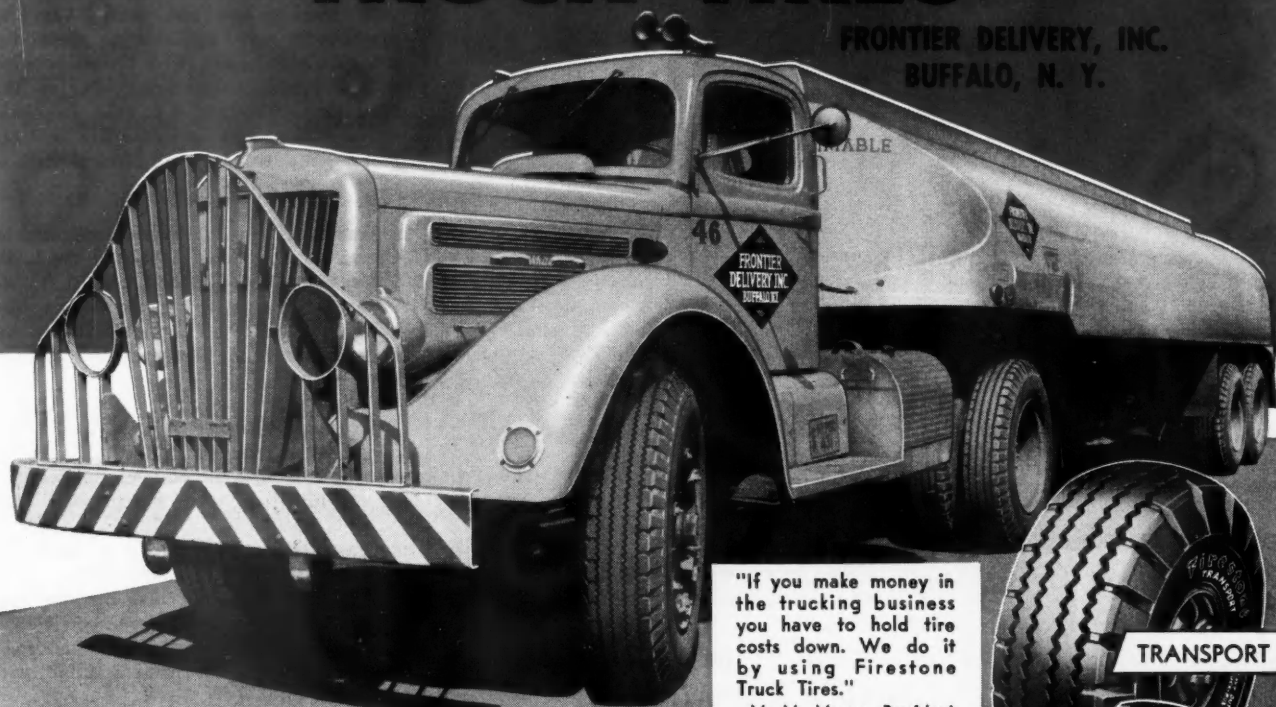
MOUNT HOLLY, NEW JERSEY
SAFETY AFTER DARK

LOW COST PER MILE?

"WE GET IT WITH..."

Firestone TRUCK TIRES"

FRONTIER DELIVERY, INC.
BUFFALO, N. Y.



"If you make money in the trucking business you have to hold tire costs down. We do it by using Firestone Truck Tires."

M. M. Moran, President
Frontier Delivery, Inc.

TRANSPORT

CC HIGHWAY

ALL TRACTION

SERVING practically every city in New York State between Buffalo and the Hudson, as well as the important trade area of North-western Pennsylvania, the fleet of tractor and tank units of Frontier Delivery, Inc. delivers 60 million gallons of gasoline, asphalt and fuel oil a year. Frontier Delivery relies on Firestone Transport Tires to keep cost-per-mile at a minimum.

Firestone Transports and Firestone C. C. Highways have reduced operating costs on hundreds of other fleets

in every type of over-the-highway service. They give extra original miles; extra retread miles; extra low cost miles. In some operations where there is need for more aggressive tread action on secondary roads, plus smooth rolling and long tread life on hard surface roads, the Firestone All Traction is the tire that does the job and cuts your costs.

The first step toward cutting your tire costs is to have your Firestone Dealer or Store give you all the facts about Firestone Truck Tires. See if they won't save you money.

THERE'S A FIRESTONE TIRE FOR EVERY LOAD, ROAD AND CONDITION OF SERVICE

Copyright, 1950, The Firestone Tire & Rubber Co.

Listen to the Voice of Firestone every Monday evening over NBC

Titeflex

ALL-METAL FUEL LINES

for TRUCKS



for CARS



for BUSES



Flexible for EASY INSTALLATION LONG SERVICE

The flexibility of Titeflex automotive lines makes them easier and more economical to install. It also makes them withstand vibration for longer periods of time than rigid lines. In addition, Titeflex lines are All-Metal. They require no maintenance . . . and they pay for themselves in longer service.

Sizes for all cars, buses, trucks

TITEFLEX, INC.

500 Frelinghuysen Ave., Newark 5, N. J.

Titeflex

ALL-METAL AUTOMOTIVE TUBING

Write for
TITEFLEX AUTOMOTIVE CATALOG

CCJ News Reports

Continued from Page 150

Industrial Notes

A new and continuous truck sales training program is being inaugurated in a series of 200 meetings now being conducted in all parts of the country by the Ford Div., Ford Motor Co. The first of 10 basic training sessions to be held in 1950, will focus attention on the importance of the truck business to the retail salesman.

Construction of a new plant at Berkeley, Calif., has been announced by Bendix-Westinghouse Automotive Air Brake Co., Elyria, Ohio. The modern new build-

On-the-spot engineering analysis of application or service problems in connection with spark plugs and other Auto-Lite products is now available to their distributors and dealers. With the cooperation of the central engineering div. of the Electric Auto-Lite Co., the merchandising division has appointed five field engineers who will work out of each division office to cover the country.

Automotive & Marine Products Corp., Boston, Mass., appointed the L. B. Poole Sales Co., Mamaroneck, N. Y., as factory representative for the Ampco line in metropolitan New York, including up Hudson River to Kingston and Poughkeepsie.

Morrison Steel Products, Inc., Buffalo, has broken ground for the addition of a new building in Buffalo, and realigned the functions of its executives.

Construction has started on a \$350,000 plant expansion of the Wayne Div. Plant of Gar Wood Industries, Inc., located in Wayne, Mich. The addition will entail a completely new machine layout and additional facilities for manufacturing and storage of steel.

The 500-mile Indianapolis Speedway Race will be broadcast exclusively for the fifth consecutive year over the Mutual network on May 30 under the sponsorship of the Perfect Circle Piston Ring Co., of Hagerstown, Ind.

Size and Weight Legislation

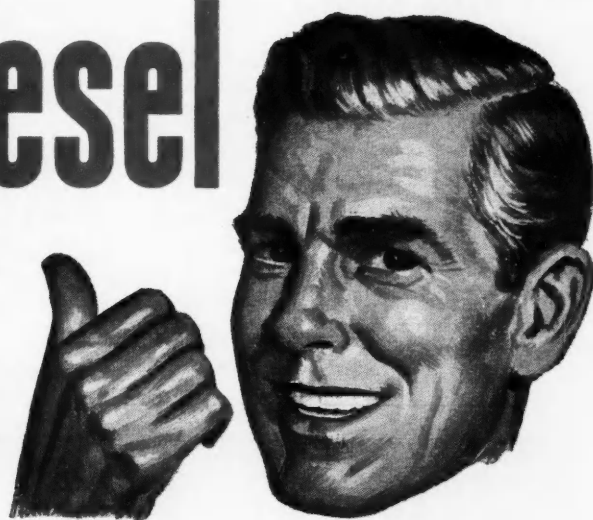
In New Jersey, the Senate has amended the truck axle weight bill, passed by the Assembly, to increase the single axle weight limit from 20,000 to 22,400 lb and the tandem axle limit from 28,000 to 32,000 lb.

The New Jersey Motor Truck Association was joined in opposition to the bill by representatives of the Farm Bureau, Grange, Dairy Transport Association, State Chamber of Commerce, truck manufacturers and the petroleum industry. These opponents argued: (1) that there is no conclusive evidence truck weights have

(TURN TO PAGE 156, PLEASE)

Out of the Diesel

Mack's offer of MAINTENANCE



TODAY'S big swing to diesel power in trucks and buses points up a growing demand for more and more men trained in diesel maintenance... reveals, too, a definite need for a fuller understanding of diesel design and principles.

Only natural that Mack—producer of more diesel-powered trucks than any other manufacturer—should be first to aid the truck and bus industry in this all-important phase of diesel development.

Illustrations on this page show mass turnouts in New York, Boston, Charlotte and Chicago in response to Mack advertisements offering "Free Training in Diesel Truck and Bus Maintenance." Other Mack ten-week training courses are now being held in Milwaukee, St. Paul, Atlanta, Albany, Philadelphia, Baltimore and 18 other

cities. Still more are being arranged for other sections of the country. All of these jam-packed meetings are a tremendous tribute to the industry's absorbing interest in Diesel Power.

Mack diesel meetings are helping to dispel the impression that there is anything inherently "mysterious" about the diesel engine. Owners, drivers and maintenance men are finding that with Mack's proved and practical design, the switch to Diesel Power is both simple and easy.

All in attendance at these ten-week courses are gaining information of inestimable value in their daily work. If you have not already registered, you are cordially invited to do so. Watch your local newspapers for date when the Mack Diesel Training Course will open in your locality.



"Taking the Mystery Out of the Diesel." Experienced Mack lecturers put the diesel story in clear, informative terms.



"INFORMATION COMING UP" as one of the panel of Mack diesel experts replies to a question in the question-and-answer period.

Be Profit-Wise
Modernize with

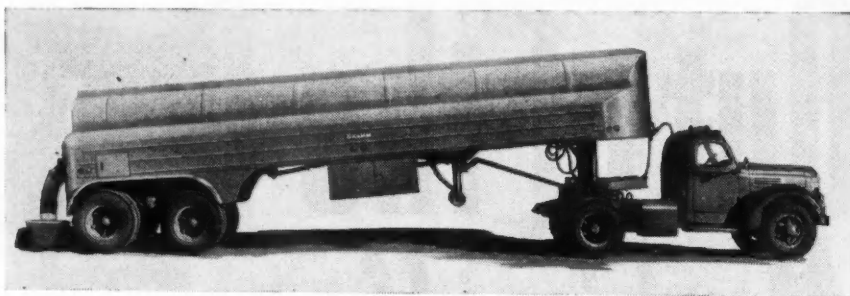


Factory branches and distributors for service and parts in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

CCJ News Reports

Continued from Page 152

damaged highways; (2) the measure would mean an additional \$21,000,000 in increased transportation costs; (3) the \$8,000,000 inventory of one truck manufacturer alone might immediately be reduced to scrap value; (4) the measure would hinder industrial development of New Jersey; and (5) the bill would create safety hazards and add to highway congestion by requiring more trucks to transport the same total freight volume.



Aerated Bulk Cement Trailer

This new aerated bulk cement transport trailer announced by Gramm

Trailer Corp. of Delphos, Ohio, is equipped to blow air through an 18-in. non-movable belt. The admixture of air causes cement to flow rapidly on as low as a 4-deg. incline. Ordinary dry bulk cement flows by natural gravitation at an angle of 50 deg. By combining aeration and a hydraulic lift, it is possible to unload cement in unfavorable locations because of the low angle of incline required. Even weight distribution is assured between the trailer and tractor since the new Gramm design incorporates the hydraulic lift to achieve the desired angle of incline. The trailer is easily converted to a fuel oil transport for off-season hauling.



Water dilution can't warp, distort, or disintegrate this oil filter!

Put a Purolator Micronic* Oil Filter in a jar of water . . . let it stand for as long as 100 hours . . . it will not warp, distort, or disintegrate!

That's an extremely important Purolator advantage, since the oil in your average crankcase is frequently diluted with 5% water. And as little as 2% water dilution causes many ordinary elements to swell up and practically shut off the oil flow through the filter within a few short hours.

But here's the real pay-off . . . Purolator assures complete filtration.

For the Purolator Micronic* Oil Filter removes an average of 290% more abrasives (proved by tests) because it filters particles measured in microns (.000039 of an inch) . . . has a filtering surface over 10 times that of old-style filters . . . does not permit channeling or unloading.

If you want fewer engine repairs and less down-time . . . let your Purolator supplier equip your entire fleet now. Remember—he has a genuine Purolator Micronic* Refill for practically every make of vehicle and oil filter!

*Reg. U. S. Pat. Off.

PUROLATOR PRODUCTS INC.

Rahway, New Jersey and
Toronto, Ontario, Canada



Transport Bills Coming Up

Bills of interest to highway users are pending in the second session of the 81st Congress, according to the National Highway Users Conference.

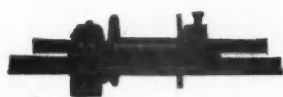
A bill has been introduced which would allow motor carriers, shippers and associations engaged in interstate or foreign commerce the right of appeal to the Interstate Commerce Commission for relief in cases where state or local laws and regulations on size and weight of vehicles "constitute an unreasonable obstruction" to the flow of truck traffic. The I.C.C. could then prescribe such sizes and weights as it deemed advisable to remove such obstructions.

Establishment of a "Federal Motor Vehicle Commission" to study means of making laws uniform pertaining to operation, ownership and control of motor vehicles has been proposed in two joint resolutions. Establishment of a "nationally uniform system for the registration of automobiles" (which term is defined to include trucks, trailers, and motorcycles) by the Director of the Administrative Office of the United States Court is proposed in a recent bill.

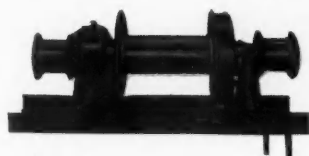
In addition to the proposed Federal-Aid Highway Act of 1950 authorizing \$570 million for each of the fiscal years 1952 and 1953, other bills would authorize use of not to exceed \$10 million in Federal funds on roads certified as necessary to the national defense, grant permission to construct bridges adjacent to dams rather than upon and across such dams, and permit allocation of unmatched Federal funds to states if the state agrees to match such funds at the next session of its legislature.

END

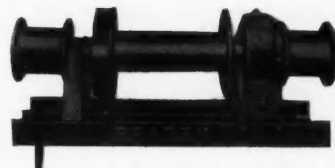
(Please resume your reading on P. 31)



★ **MU3-10F.** An extremely sturdy underslung model for front end mounting. Safe Working Load: 6,000 lbs.



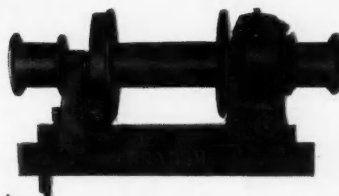
★ **M6-15B.** Safe Working Load: 12,000 lbs. Equipped with the New OIL COOLED, FULLY ADJUSTABLE AUTO-MATIC SAFETY BRAKE.



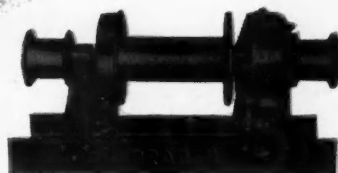
★ **M9-18B.** A versatile model for handling loads up to 18,000 lbs. For use on 1 1/2 to 2 1/2 ton trucks. Safe, dependable, GUARANTEED.



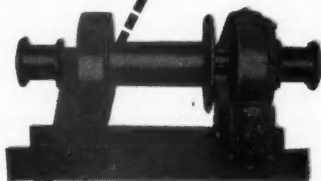
★ **M12-18B.** For tough jobs that require handling loads up to 25,000 lbs. For use on 1 1/2 to 2 1/2 ton trucks.



★ **M18-18B.** A new Braden Model for handling loads up to 36,000 lbs. Works well on medium or heavy-duty trucks.



★ **M30-20B.** A 60,000 lb. capacity model that can keep heavy loads under perfect control. Designed for safety and ease of operation.



★ **M50-20B.** The truck winch with the greatest capacity ever built on a standard production basis. Safe Working Load: 100,000 lbs.

**CHOOSE YOUR
Model
FOR ANY
HANDLING JOB**

Yes, there is a BRADEN winch for any handling job. Models are available with a capacity of 6,000 to 100,000 pounds. Each winch has built-in safety features designed and perfected for exclusive use by BRADEN. Write for complete information, or see your nearest Braden dealer.

BUY BRADEN — They Are Safer

BRADEN WINCH COMPANY

Post Office Box 1709



TULSA 1,

Oklahoma

Specialist Crews Step-Up Service

Continued from Page 53

vehicle caught fire at 10 o'clock one morning and, before it was extinguished, the damage was considerable. The radiator was ruined, the glass cracked and bent, panels damaged, wiring shot, etc. The coach was brought in, all the crews pitched in, and it was returned to service the next morning.

Organizing the men into crews and coordinating their activities removed a lot of detail work, with the result that

I can devote a large measure of my time to operating the record keeping system.

Record System is Simple

BOOK work at Helms is kept to a bare minimum—but, in effectiveness, it is probably the most outstanding part of the entire program. We believe in adequate records, but they can do as much harm as good if they are too involved. Mechanics are men of

action. They resent, and even ridicule, excessive amounts of book work.

The first reports come from the cleaning crew. These show the current mileage of each vehicle and how much gas and oil it took. Comparison with sheets for previous periods indicate when a particular coach is using more gas or oil, and of needed work or at least an inspection. These cases are referred to the night complaint correction crew for follow-up. Periodically, oil samples are sent to a laboratory for a check on dilution content, as a further check on performance of each engine. The reports made by the cleaning crew are exceedingly brief and quick to fill out, but they serve their purpose.

The lube man makes out a simple report on each lube job showing any needed work that he has uncovered. If the trouble wasn't remedied by the night complaint crew, the report comes to me in the morning, and I arrange to have the job handled in the shop. This report also is very simple.

Each crew chief makes out a daily report showing which vehicles his men worked on, what was done, and how long it took. For example, the engine crew may have rebuilt engine 309. This report tells me how long the job took, which is a check on the efficiency of the

(TURN TO PAGE 160, PLEASE)

Pressure Gas Tank Inspection

A tank to be placed on a truck chassis for use in transporting pressure gases such as propane, butane, etc., is subject to certain definite requirements before it may be lawfully used in Pennsylvania. Prospective purchasers of such equipment should investigate carefully before purchasing to be sure that all these requirements have been satisfied.

A recent purchase of this character was nullified when it was disclosed that inspection during construction was made by an Omaha (Nebraska) city inspector who was not registered with the Penna. Dept. of Labor and Industry. An appeal by the manufacturer to the State Industrial Board for a remedy to permit use of the tank in Penna. was denied.



"82,507 miles without an accident and you had to come along — my own wife!"

A GALLERY of CHARACTERS WHO LOVE MOLD-BLOK



JOE HYBALL—TRUCK PILOT
says: "SURE I LIKE EASY SURE STOPS—WHO DON'T?"



I. M. DELAW SAYS: "MOLD-BLOK MEANS HIGHWAY SAFETY AND THAT'S FOR ME."



IMA DRUM SAYS: "IT'S SO EASY AND GENTLE AND KIND TO ME."



MR. FLEET OPP SAYS: "LONGER RUNS BETWEEN RELINES—LOWER COSTS—SURE I LOVE IT."

MOLDED MATERIALS DIVISION

of

CARLISLE CORPORATION

RIDGWAY, PA.



IN OVER-THE-ROAD
OPERATION WITH HEAVY
ELECTRICAL LOADS



IN DOOR-TO-DOOR
DELIVERY SERVICE



LOW SPEED CRUISING
TWO-WAY COMMUNICATIONS



IN STOP-AND-GO
HEAVY TRAFFIC



LONG IDLING AND TWO-WAY
RADIO OR RADIO TELEPHONE

FREE GENERATOR BOOKLETS

Send for your free copies of valuable booklets — "What You Should Know About Automotive Generators" (Form 3459) and Technical Bulletin (Form 3456/1).

American Bosch SPECIAL SERVICE GENERATORS

Given a balanced diet of normal "charge" and "discharge", your batteries are built to live active, trouble-free lives. But . . . overloaded with auxiliary lighting equipment, two-way radio or telephone and in stop-and-go service, your batteries demand the protection of AMERICAN BOSCH Special Service GENERATORS. You'll stop costly delays and save maintenance expense on emergency repairs.

Adequate current, day or night... "round-the-clock" battery care ...that's the story in a nutshell.

AMERICAN BOSCH Special Service GENERATORS, with their low cut-in speed and quick, full output are designed to keep your batteries from taking a needless beating. Whether your vehicles have long idling periods or long runs with heavy electrical loads, there's an AMERICAN BOSCH Special Service GENERATOR expressly engineered for your particular service requirements. Write for full details on extending the useful life of your batteries. We'll tell you how you can get ample output — ALL the time.



American Bosch

MAGNETOS • GENERATORS • VOLTAGE REGULATORS • IGNITION COILS
ELECTRIC WINDSHIELD WIPERS • DIESEL FUEL INJECTION EQUIPMENT

AMERICAN BOSCH CORPORATION • SPRINGFIELD 7 • MASS.

Specialist Crews

Continued from Page 158

department. The original crew chief's report is filed away as a permanent record of just what was done to that particular engine and when.

There is an index sheet for each engine and each chassis. The sheet for a given engine is kept with the sheet for the chassis in which it is installed. When the engine is changed, the sheets are changed. It's easier to change sheets than to go to the trouble of re-

placing the same engine in the same chassis.

If an engine is rebuilt, a check mark is placed on the index sheet, under that heading, with the date it was done. Later, we can look on the sheet for that engine and see that it was rebuilt at that specific time. Nothing more is entered on this sheet; unless, of course, other work was done. If some time later we want to investigate the record of this engine, we can tell in detail just what was done by looking up the daily report of the engine crew chief, which is filed away by date.

This system involves a minimum of work because there is no transcribing of reports. It enables us to look up the entire history of any engine or chassis, in a matter of seconds. Nothing could be more adequate; nothing could be simpler.

All comparisons of performance and other records are kept on a time basis, not by mileage. When desired, of course, these figures can easily be converted into mileage comparisons.

A record sheet is kept in a similar manner for each tire and each battery in service. No effort is made to keep the same tires on a coach, or the same battery. All tires and batteries, like the engines, are just "in service."

The record sheet for a tire shows the make, cost, when put into service, when out of service, etc. If the tire is recapped, the record shows when it went into service after the recap, how long it lasted, and what company did the recapping.

Each tire is branded with a company number when it goes into service. It is also branded with the date. If it is recapped, this date is branded under the first date. These dates also are registered on the record sheet for the tire. When a tire fails, its age can be determined just by looking at the tire itself without bothering to look up the records.

A similar record is made of each battery. It, too, is stamped with the date that it goes into service. In case of
(TURN TO PAGE 164, PLEASE)



SAVES time, money, manpower & floorspace

"The Drum Safety Jack is the slickest thing we've seen in our 31 years of operation," reports Austgen Express and Storage Company of Chicago Heights. "We save one man on most wheel removal jobs. We can use the Drum Jack out in the yard or on the road. Most important, our mechanics are not exposed to the hazard of crawling under trucks or trailers."

GET FULL DETAILS—MAIL COUPON TODAY



DRUM JACK CORPORATION

Subsidiary of The Cleveland Pneumatic Tool Company
3769 EAST 77th STREET • CLEVELAND 5, OHIO, U.S.A.

We would like to know more about the DRUM Safety JACK.

Company

Address City

Feb. Freight Volume Slumps

The volume of freight transported by motor carriers in February decreased 3.1 per cent below January but increased 16.1 per cent over February, 1949, according to statistics compiled by the Department of Research of the American Trucking Associations, Inc.

Comparable reports received by ATA from 318 carriers in 42 states showed these carriers transported an aggregate of 3,147,597 tons in February, as against 3,247,372 tons in January and 2,712,104 tons in February, 1949.

Approximately 76 per cent of all tonnage transported in the month was hauled by carriers of general freight. The volume in this category decreased 0.7 per cent below January but increased 17.7 per cent over February, 1949.

Transportation of petroleum products, accounting for about 13 per cent of the total tonnage, showed a decrease of 12.6 per cent below January but increased 9.9 per cent over February, 1949.

Order "PRESTONE" BRAND Anti-Freeze Now Take Delivery Early!

**Yours without cost when
you order early!**

VALUABLE DEALER HELPS KIT

You get the new "PRESTONE" ANTI-FREEZE DISPLAY KIT, yours without cost, when you place your pre-season order. Giant outdoor banner! Vivid streamers! Striking window-display! 1950 "Prestone" anti-freeze protection chart containing newest data on all late-model cars!

The registered trade-marks
"Prestone" and "Eveready"
distinguish products of

**NATIONAL CARBON DIVISION
UNION CARBIDE AND CARBON CORPORATION**

20 East 42nd Street, New York 17, N. Y.

List Price
\$3⁵⁰
per
gallon



PROTO* Power Sockorse ... for Speed and Force!



BIG NEWS!!

PROTO* Power Sockets Tripled

Fast as a Derby winner and strong as a plow horse, PROTO* power socket wrenches are the mainstays of production in factories using power nut runners. And they're odds-on favorites with mechanics who need heavier than thin-wall sockets for standard handles and attachments. In the greatly expanded PROTO* line—tripled recently—sizes and designs are available for almost every type of job. Hitch up the right power horse to your work. Race to your PROTO* dealer for these tough power sockets.

Write for catalog to
PLUMB TOOL COMPANY
2269X Santa Fe Ave.,
Los Angeles 54, Calif.

*PROTO means **PRO**fessional
TOols. It's the new name for
the tools that have been pre-
ferred for 43 years.



Single-Hexagon
Socket



Double-
Square
Socket



Extra-
Deep
Socket



Socket
Extension



Universal
Socket

Specialist Crews

Continued from Page 160

trouble, it can be determined just how long the battery has been in use. The record sheet also shows the number and make of the particular battery for a complete performance record.

Parts Inventory Cut \$22,000

THE most spectacular savings have been made in maintenance labor, but maintenance materials also have contributed to the reduced figure for cost of operation of the fleet. A lot of the results gained by this program were effected by gaining the cooperation of the men and this applies to savings in materials. If a man has the interests of his company at heart, he won't throw away a part that can be reclaimed but will salvage it for further use. We strive for this type of cooperation.

The company also effected a saving by reducing its parts inventory from \$58,000 to \$36,000, by improving its inventory system, and by buying more closely; so that the supplier carries the inventory instead of the shop.

Operation Problems Corrected

MAINTAINING the Helms fleet always had presented difficulties because of the manner in which the vehicles are operated. Any door-to-door, low-speed operation creates engine conditions not encountered in line haul operations. This situation is even more extreme with Helms' trucks. A milk truck driver has his regular stops. He drives from one to another. The Helms driver sells his bakery products by driving along slowly and blowing a whistle. He stops as often, or more often, than a dairy driver, but he also drives slowly between stops. This manner of driving produces serious maintenance problems.

Many engines showed abnormal cylinder wall wear, and bearing failures, until it was discovered that slow operation at the improper gear ratio was causing the trouble. At slow speeds under a loaded condition the cylinder walls were running dry, which naturally caused excessive wear. Changing the gear ratio from 6.60 to 1 to 7.20 to 1 corrected this condition immediately.

Another condition inherent in slow speed operation has been low oil temperatures, because the engines didn't run hard enough and long enough at a time to heat the oil. This has been at least partially solved by under-coating the oil pans, resulting in raising the oil temperatures 30 deg.

END

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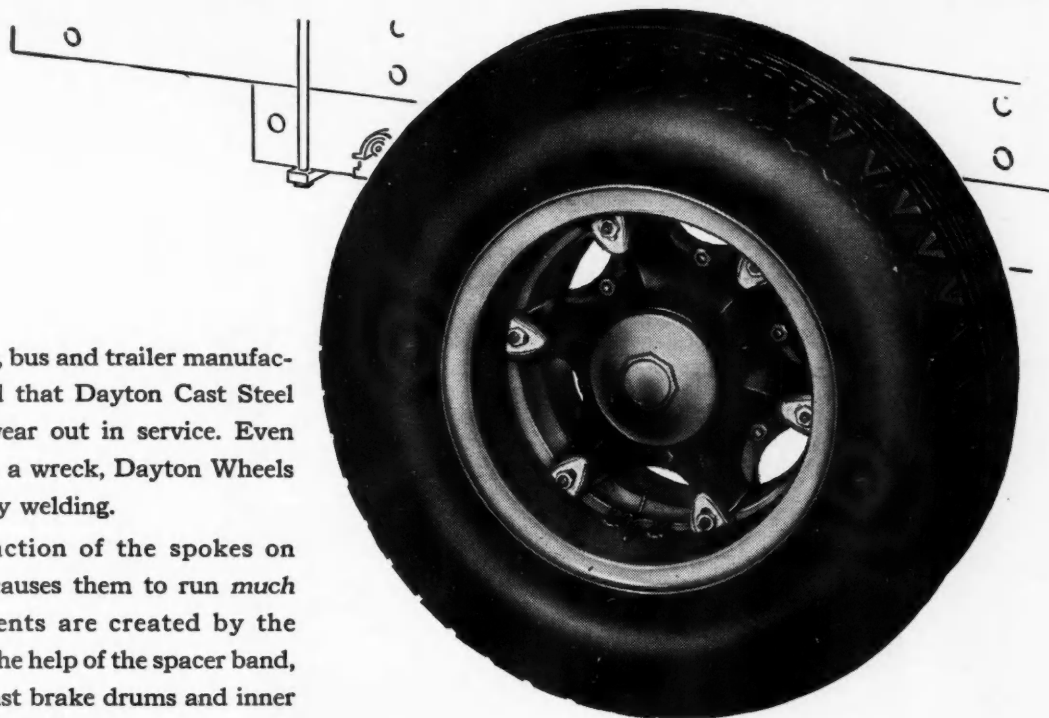
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are distributed through
National Wheel & Rim
Association Members

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ALBANY, N. Y.....Wheels Incorporated
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CHICAGO, Ill.....Stone Wheel, Incorporated
CINCINNATI, Ohio.....Rim & Wheel Service
CLEVELAND, Ohio.....Motor Rim Manufacturers Co.
COLUMBUS, Ohio.....Hayes Wheel & Spring Service
CUMBERLAND, Md.....R. W. Norris & Sons
DALLAS, Texas.....Southwest Wheel, Incorporated
DAVENPORT, Iowa.....Stone Wheel, Incorporated
DAYTON, Ohio.....Rim & Wheel Service
DES MOINES, Iowa.....Des Moines Wheel & Rim Co.
DENVER, Colo.....Quinn & McGill Motor Supply
DETROIT, Mich.....H. & H. Wheel Service, Inc.
DETROIT, Mich.....Rim & Wheel Service Company
DOVER, Del.....R. W. Norris & Sons
EDMONTON, Can.....Alberta Wheel Distributors, Ltd.
FARGO, N. D.....Pioneer Rim & Wheel Company
FARGO, N. D.....Wheel Service Company
GRAND RAPIDS, Mich.....Rim & Wheel Service Co.
HAGERSTOWN, Md.....R. W. Norris & Sons
HARRISBURG, Pa.....Standard Wheel & Rim Co.
HARRISONBURG, Va.....Harrisonburg Wheel & Parts, Inc.
HARTFORD, Conn.....Connecticut Wheel & Rim Co.
HOUSTON, Texas.....Southwest Wheel & Equipment Co.
INDIANAPOLIS, Ind.....Indiana Wheel & Rim Co.
JACKSONVILLE, Fla.....Southeast Wheel & Rim Co.
KANSAS CITY, Mo.....Borlein, Young & Company
KNOXVILLE, Tenn.....Harris Automotive Service, Inc.
LOS ANGELES, Motor Rim & Wheel Service of Calif.
LOUISVILLE, Ky.....Auto Wheel & Rim Service
MEMPHIS, Tenn.....Beller Wheel, Brake & Supply Co.
MILWAUKEE, Wisc.....Stone Manufacturing Company
MINNEAPOLIS, Minn.....Pioneer Rim & Wheel Co.
MINNEAPOLIS, Minn.....Wheel Service Company
MONTREAL, Can.....General Automobile Equip., Ltd.
NASHVILLE, Tenn.....Beller Wheel, Brake & Supply Co.
NEWARK, N. J.....Wheels Incorporated
NEW HAVEN, Conn.....Connecticut Wheel & Rim Co.
NEW ORLEANS, La.....Southern Wheel & Rim Service
NEW YORK, N. Y.....Wheels Incorporated
OKLAHOMA CITY, Okla.....Southwest Wheel, Inc.
OMAHA, Nebr.....Morgan Wheel & Equipment Co.
OMAHA, Nebr.....Omaha Rim & Wheel Company
PEORIA, Ill.....Peoria Wheel & Rim Company
PHILADELPHIA, Pa.....Kay Wheel Sales Company
PHILADELPHIA, Pa.....Thomas Wheel & Rim Co., Inc.
PITTSBURGH, Pa.....Wheel & Rim Sales Company
PORTLAND, Oregon.....Auto Wheel Service
PORTLAND, Oregon.....Six Robbles, Incorporated
RALEIGH, N. C.....Carolina Rim & Wheel Company
RICHMOND, Va.....Dixie Wheel & Rim Company
ROCHESTER, N. Y.....Frey, The Wheelman, Inc.
ST. LOUIS, Mo.....Borlein, Young & Company
SALISBURY, Md.....R. W. Norris & Sons
SALT LAKE CITY, Utah.....Henderson Wheel, Rim Serv.
SAN ANTONIO, Texas.....Southwest Wheel & Equip. Co.
SAN FRANCISCO, Motor Rim & Wheel Serv. of Calif.
SEATTLE, Wash.....Six Robbles, Incorporated
SOUTH BEND, Ind.....Wire & Disc Wheel Sales Co.
SOUTH HILLS, Va.....South Hills Wheel & Parts, Inc.
SPOKANE, Wash.....Bearing & Rim Supply Company
SPRINGFIELD, Ill.....Illinois Wheel & Brake Company
SPRINGFIELD, Mo.....Borlein, Young & Company
SYRACUSE, N. Y.....Colbourn Wheel & Rim Company
TACOMA, Wash.....Six Robbles, Incorporated
TOLEDO, Ohio.....Wheel & Rim Sales Company
TORONTO, Canada.....Harpham Brothers, Ltd.
TORONTO, Canada, Wheel & Rim Co. of Canada, Ltd.
VANCOUVER, B. C., Canada.....Wheel & Equip., Ltd.
WICHITA, Kansas.....Borlein, Young & Company
WINCHESTER, Va.....R. W. Norris & Sons
WINNIPEG, Can., Automobile Supply Company, Ltd.
WINNIPEG, Canada, Fort Garry Tire & Service, Ltd.
WINSTON-SALEM, N. C., United Automotive Service

DAYTON WHEELS

*cost less for service than
any other wheel!*



The leading truck, bus and trailer manufacturers have found that Dayton Cast Steel Wheels do not wear out in service. Even when damaged in a wreck, Dayton Wheels can be repaired by welding.

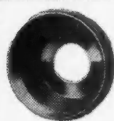
The fanning action of the spokes on Dayton Wheels causes them to run *much cooler*. Air currents are created by the spokes and, with the help of the spacer band, are directed against brake drums and inner walls of the inside tires.

Increased pressure exerted by each of the rim nuts on the clamp bevel against the demountable rim prevents rim slippage and consequent uneven tire wear.

Dayton Wheels help to lower operating costs, too, and most smart operators have taken advantage of these savings for many years. Specify Dayton Wheels for new equipment and replacements.

THE DAYTON STEEL FOUNDRY COMPANY, DAYTON 1, OHIO

Dayton SPOKE TYPE CAST STEEL Wheels



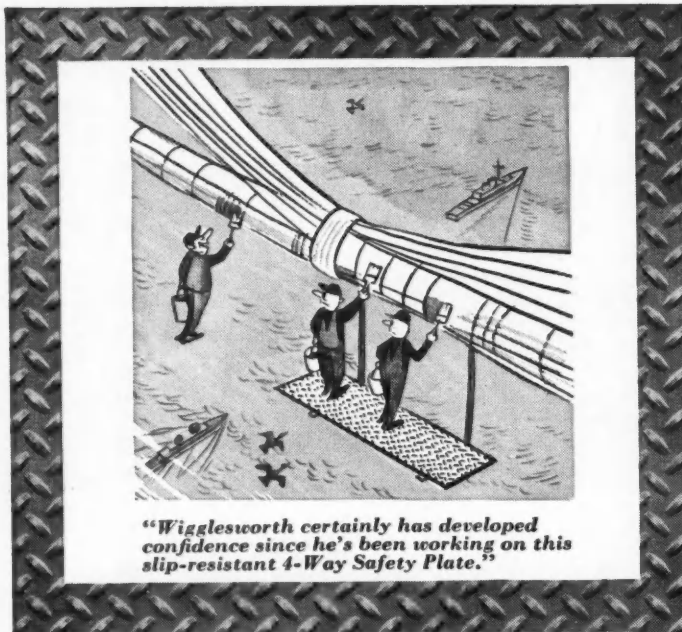
Dayton Brake Drums assembled to the wheels at the factory give more perfect concentricity.



Dayton 5th Wheels Standard equipment on many trailers. Quick coupling Positive operation.

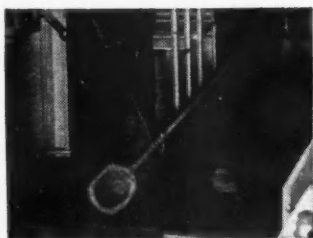
Dayton Landing Gears Made in both hydraulic and mechanical types.



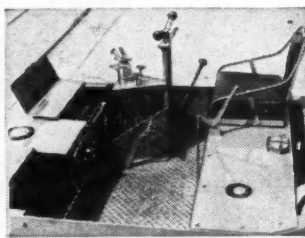


For greater safety under foot,
in your plant and on your products

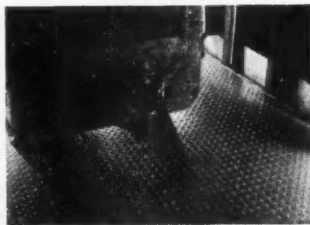
Inland 4-Way Safety Plate®



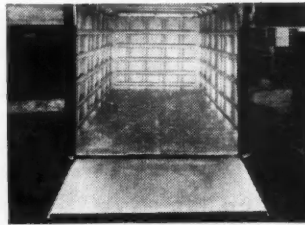
Firesafe



Long Life



Quick Starts—Stops



Adds Strength



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New Bulletin with New
Ideas—Just Out! Bulletin
FI. Complete engineering
and application data.
Send for it!

STOCKED BY LEADING STEEL WAREHOUSES

Washington Runaround

Continued from Page 35

However, a recent speech by E. R. Jelsma, director of the subcommittee staff, might prove to be of more significance than any of the direct testimony thus far.

Speaking at Kent University, Mr. Jelsma implied that the authority to regulate the various forms of transportation indicates an obligation to protect the carriers being regulated through proper rate-making. This has long been a railroad contention and it is to be hoped that the rail viewpoint will not soon be the dominating influence in what started out to be an impartial study, as has happened in so many other cases on Capitol Hill.

Lenoir & Schenley Again

The private vs. for-hire carrier fight is blossoming forth again. Recent decisions by the ICC, notably those in the Lenoir and Schenley cases, have held that the "primary business" of the carrier rather than any "compensation" received was the deciding factor in determining private carriage. The private carriers had hoped that these decisions would at least soften the constant harassment from the for-hire interests.

Such was not to be the case, however, for three common carriers have filed suit in the Federal District Court at Richmond, Va., against the ICC seeking to "enjoin, vacate, set aside, or annul" the order in the Lenoir and Schenley cases.

In the Burlington Mills case, which the ICC also held to be private carriage based on the "primary business" test, for-hire interests have forced a re-opening of the case on the grounds that opponents had no chance to be heard. This re-opened case is still a long way from a final order, since the present hearings have just concluded and the examiner's report has yet to be filed.

Road Tests Soon

Concentrated testing of concrete pavement under varying truck loads is scheduled to start in southern Maryland later this month. This series of tests is the outgrowth of a meeting of highway officials of central and eastern states held last December (CCJ, Feb., Page 48).

The tests will encompass single axle loadings of 18,000 and 22,400 lb. per axle and corresponding tandem loadings of 32,000 and 44,800 lb. The trucks will operate at an average frequency of one truck per minute on a 24-hr. per day, 7-day week schedule.

The route to be used is a 1.1 mile section of U. S. Route 301, which was paved in 1941 and is in good condition. Regular traffic will use an alternate parallel road during the test period.

The tests are sponsored by the States attending the winter meeting and the Bureau of Public Roads. Administration is in the hands of the Highway Research Board.

(TURN TO PAGE 170, PLEASE)

gives better service -lubricated points automotive vehicle

SHELL RETINAX "A" GREASE

Here, at last is the true *multi-purpose* automotive grease . . . a patented, basically different lubricant that is already making important changes in fleet maintenance and purchasing procedures.

No other grease available today to fleet operators combines *all* of the qualities present in Shell Retinax "A" Grease . . . nor can any other grease score so highly on *all* vehicle grease application points. Check these advantages carefully!

5 Big Savings for Fleet Owners

1. **Lower consumption.** Users report up to 50% savings in the amount of grease required per "grease job."

2. **Minimum inventory.** Shell Retinax "A" replaces 4 separate greases which, until now, were necessary to approach the characteristics of this new grease.

3. **No costly errors** are possible. Operators cannot apply wrong grease.

4. **Quicker servicing** is achieved because there is no time wasted changing guns or waiting for another operator to finish.

5. **Minimum equipment** required since multiple guns and dispensers are eliminated.

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA



- for all automotive vehicles

Washington Runaround

Continued from Page 166

Gag Rule for Hearings

The ICC has limited the time allotted for public hearings on motor carrier applications. A new policy is now being applied to cases in which hearings would last more than five days. In these cases, the parties will file with the ICC, in advance of the hearing, verified statements and exhibits of witnesses. Verified rebuttal statements will be handled in the same manner.

Persons who signed the statements may also have to appear for cross-examination.

The Commission warns that "the time which can be allowed for the oral hearings will be limited and all interested parties will be held strictly to the time allotted to them."

Pointing out that the Bureau of the Motor Carriers conducts over 3000 hearings each year, the ICC statement emphasizes that the Commission "has been concerned for some time about the length of many of the hearings and the resulting disrupting influence on its other work."

In the first case to which the new policy was applied, the interested parties asked

for three weeks of hearings outside Washington and an unlimited hearing at ICC headquarters. They were limited to a total of 60 hours.

Washington Miscellany

Sensible quote of the month: The principal objective of the ICC safety inspectors "is not to obtain prosecutions; it is to encourage such practices as will contribute to safe operations."—W. Y. Blanning, Director, Bureau of Motor Carriers . . . In the 12-month period which ends June 30, Army Ordnance will have rebuilt 17,000 transport vehicles for the Army and 5,086 for the Air Force. These vehicles are for re-issue to units in this country.

Overseas rebuilding programs are also extensive. In Germany, 38,000 vehicles have been rebuilt. In Japan, some 60,000 general-purpose vehicles are scheduled for rebuilding . . . The Reconstruction Finance Corporation recently okayed a \$1,000,000 loan for the Highway Trailer Co., of Edgerton, Wisconsin. RFC agreed to a five-year maturity period on the loan, which is to be used for working capital and debt payment . . . Another piece of legislation (H. J. Res. 452) looking toward uniform motor vehicle laws has been dropped into the Congressional hopper by Rep. Norblad, Rep., Ore. The measure would establish a Federal Motor Vehicle Commission to recommend uniform laws pertaining to operation, ownership, and control of motor vehicles. Like many other such worthwhile bills, it hasn't got a chance.

Insurance Minimums

ICC hearings on proposals to increase minimum trucking insurance requirements have revealed that most motor carriers are already covered with public liability and property damage insurance in excess of minimum requirements.

S. Garret Swain, Jr., ICC's motor carrier insurance chief, appearing at a recent examiner's hearing stated that only 10.74 per cent of motor carriers surveyed are covered at the minimum public liability limits of \$5,000-\$10,000. He further pointed out that only 1.74 per cent of the motor carriers are insured against property damage for less than \$5,000, whereas the ICC minimum is \$1,000.

Final decision as to whether the minimums should be raised is several months away.

END

Please resume your reading on P. 39

Here's Faster, Easier Welding to Cut Your Repair Costs



Adds Bumper Rim of 5" channel veed, bent to shape and welded to old chassis frame.



Reinforces Trailer Body by welding rear bumper guard of steel channel to trailer chassis.

Built Specially for Fleet Maintenance. Fleet operators are reporting simpler, easier welding with substantial savings in repair and building costs with their new Lincoln "Fleetwelders".

For Heavy Repairs like truck frames and axles, "Fleetwelder's" easier welding now permits any repairman to produce strong, high quality welds faster, simpler.

For Light Body Work "Fleetwelder's" easy-to-start arc and exceptionally stable arc at low currents means uniform welds with minimum danger of burn through . . . less body distortion than with gas welding to cut down body soldering and finishing work.

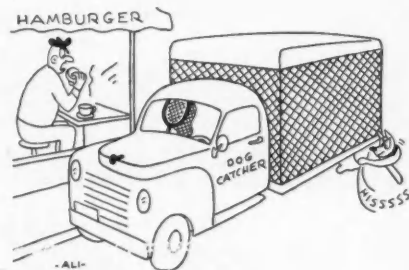
Low in Price. NEMA rated 30 to 250 amps., "Fleetwelder" has plenty of extra amps. in reserve to give you long, dependable service on the heaviest of jobs . . . yet sells for much less than any welder of comparable capacity. Is mounted on wheels for use everywhere in the shop. Operates on single phase power.



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HEADQUARTERS NOW
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









**Genuine BOHNALITE Connecting Rods, As Well As
All Other BOHNALITE Products Are Superior . . .**

When you order GENUINE BOHNALITE CONNECTING RODS, or any of the many other GENUINE BOHNALITE PRODUCTS in the complete line of replacement parts, you are assured of a superior quality and performance. BOHN quality is backed by 35 years of accumulated experience in the development and eleven-plant production of original equipment parts for leading manufacturers of cars, trucks and buses!

GENUINE BOHNALITE CONNECTING RODS instantly available in either reconditioned or rebabbitted types, possess all the superior qualifications for lasting satisfaction, including complete accuracy between centers, diamond-bored bushings, accurate alignment, and over-all precision inspection! (For insert types, order insert bearings with rods.)

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-  **Bolts**
-  **Nuts**
-  **Shims**
-  **Solders**



DETROIT, MICHIGAN 26, MICHIGAN

System Supplies Functional Costs

Continued from Page 59

age tables to determine the state mileage break-down. Following is a suggested segment table:

OPERATION: Chicago, Ill.-Denver, Colo.					Total
	Ill.	Mo.	Kans.	Colo.	Miles
Chicago, Ill.-					
St. Louis, Mo.	296				296
St. Louis, Mo.-					
Kansas City, Mo.		274			274
Kansas City, Mo.-					
Oberlin, Kans.		52	314		366
(via St. Joseph, Mo.)					
Oberlin, Kans.-					
Denver, Colo.		93	179	272	1208

Similar state mileage tables would be required for segments of the route which differ from the above.

Possibly four different drivers' trip reports would be involved in the full 1208-mile operation. Each driver's report would indicate extent of the operation, and mileages by states could easily be noted on each report for posting to a mileage record form. If the same vehicle is used for the entire operation, the mileage record form will so

indicate, showing mileages operated within each state.

Costs of vehicle licenses and fees assessed by various states are vitally involved and it is entirely possible that one particular power vehicle would not be used to operate the entire route, but only one or two separate legs of the whole. In this case, the vehicle would be dispatched to the return, or to some other trip, and another power vehicle allowed to proceed to Denver with the original loaded trailer.

Mileage Cost Record

IT IS the purpose of this report to present simplified methods of obtaining mileage cost data and to introduce a single form on which may be recorded all important elements necessary to achieve the desired results.

A simplified form is illustrated herein and is described as "Vehicle Mileage and Cost Record." It is designed for a 11x11-in. sheet.

One form should be used for each vehicle each month, regardless of whether the vehicle is owned, leased, or is a purchased transportation unit. It will provide a record of mileages, day by day, for a full month.

Following is a detailed explanation of the function of the form, including comment on each column and each item appearing thereon:

Vehicle mileages, loaded or empty, and driver's name should be posted on the appropriate date line. Intercity mileages, separated between states, may be posted from road drivers' daily or trip reports, or other available drivers' records.

At the end of the month all mileages
(TURN TO PAGE 174, PLEASE)

WHAT COULD BE SIMPLER OR EASIER TO APPLY THAN ONE-PIECE *Hansen* EXTENSION LOCKS

HANSEN Hardware is noted for its extremely simple design. The locks shown are made in one piece, including inside handle (except No. 63).

No loose parts. Self-contained. Compact, strong, easy to apply, these locks are built to withstand hard usage. Die-formed steel bushing. Wide, hardened striker bolts.

Hansen makes a complete line of commercial body hardware. Write for catalog.



NO LOOSE PARTS
TO ASSEMBLE

NO COMPLICATED
SPRINGS

MADE ENTIRELY
IN ONE PIECE

No. 60 one-piece extension lock. 1 1/4" hardened striker bolt. Size of lock, 5" x 10". Handle 5".
No. 65 extension lock. One piece. 1 1/2" striker bolt. Size 5" x 10". Inside handle, 5" long.
No. 60-L extension lock with locking cylinder and two keys. Size 10 1/2" long, 7 1/4" high.
No. 63 Mortise lock. Size 5" x 3 1/4". Striker bolt 1 1/4". Die-formed steel bushing.

No. 60 (front)

No. 65

No. 60-L

No. 60 (back)

No. 63

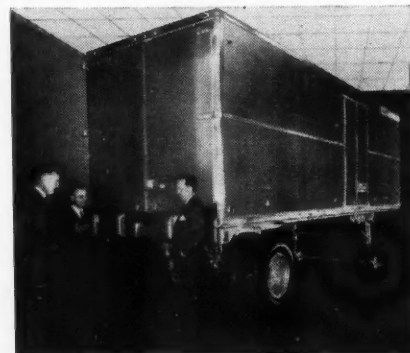
WIDE STRIKER BOLT

DIE-FORMED BUSHING

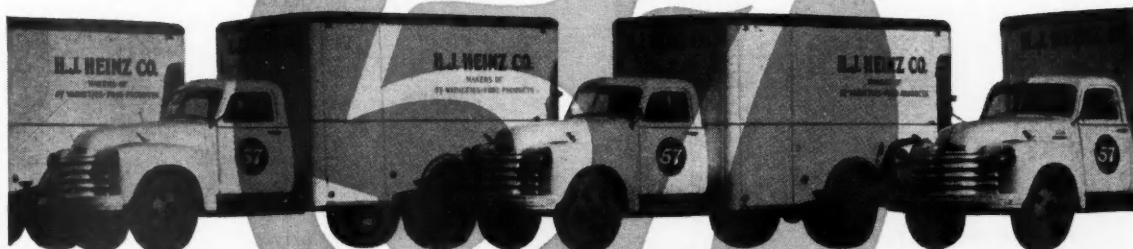
A. L. HANSEN MFG. CO. 5047 RAVENSWOOD AVE. CHICAGO 40, ILL.

HANSEN HARDWARE for Commercial Bodies

Introducing Heavy Light-Weight



President H. L. Charlton, Engineering Vice President James Stephen and M. F. Sperry, Chicago Branch Manager of the Highway Trailer Co. at the presentation of the new all-aluminum trailer. Keynote is its light weight and heavy duty strength. Extra bracing and reinforcements at all stress points are featured in addition to the heavy-duty aluminum understructure



WINSLOW FILTERS CUT OPERATING COSTS ON HEINZ FOOD DELIVERIES



The H. J. Heinz Company, famous for more than eighty years for its 57 varieties of fine food products, is one of the first large truck fleet operators in the nation to really investigate the savings made possible by standardization of filtration equipment on their vehicles.

Their accurate records, kept over a long period of time, showed that Winslow Filters saved them more per year per vehicle than filters previously used. This economy did not include lengthened engine life or costs of replacing parts damaged by improper lubrication. Why not let Winslow perform the same service for you?



This Winslow Lubricating Oil Conditioner, Model 1051, is one of hundreds being installed on Heinz vehicles.

WINSLOW FILTERS

Winslow Engineering Company

4069 Hollis Street • Oakland 8, California

503-T-1

Functional Costs

Continued from Page 172

operated by a specific vehicle will be recorded on the form, by states, and may be consolidated with mileages for other vehicles for the determination of total mileages operated within each state.

Pickup and delivery mileages may be posted from city drivers' daily reports which should show vehicle unit numbers, mileage operated, hours of vehicle

operation, and other information pertinent to the operation or as desired by management. Report should include miles and hours while vehicles are actually used in pickup and delivery or local service.

Quite often no attempt is made to obtain pickup and delivery or local miles; however, such mileages must be determined and consolidated with intercity or over-the-road operations for complete vehicle mileage records for the purpose of calculating accurate costs per mile.

The form includes columns for the

following principal items of vehicle expense:

Motor Fuel—gallons and amount
Motor Oil—quarts and amount
Repairs and Servicing—amount
Tires and Tubes—amount

and becomes a complete record of mileages and of major variable expenses for each vehicle for the entire month, all recorded on the same form, thus making the determination of individual vehicle mileage costs a simple process.

Average miles per gallon of motor fuel, for specific or for all vehicles combined, may be compared with previous periods and differences of any consequence investigated for a determination of the reason for a variance, if any. Possibly highway conditions would be a contributing factor, or, perhaps, an excess consumption of fuel may indicate poor mechanical condition of the vehicle motor.

Cost information may be posted from original invoices, stock records, or from any other medium which constitutes a part of the accounting system of the fleet owner.

Provision is made on the lower portion of the form for showing the unit number, or other identification designation, of each vehicle—number to be shown in truck, tractor, or trailer column, as appropriate. The unit number, or other designation, should indicate, *per se*, whether vehicle is owned, leased, or purchased transportation (as required by Interstate Commerce Com-

(TURN TO PAGE 176, PLEASE)

Chicago
Pneumatic
automotive
air compressors



with your
air-powered tools

Your men will make much more profitable use of impact wrenches, fender irons, paint sprayers, sanders and other air-powered equipment, if they do not have to wait for air.

And it's easy to provide ample air with a CP two-stage, air-cooled Automotive Compressor, because there are 7½, 10 and 15 H.P. models to meet the needs of the individual shop.

Dual control permits either intermittent or continuous operation, reducing maintenance cost and lengthening compressor life. Built to high CP standards—with Simplate valves, sturdy crankshaft on ball bearings, light reciprocating parts, accurate counterbalancing, dust-tight crankcase—maintenance is low.

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AUTOMOTIVE SERVICE EQUIPMENT • FENDER IRONS • ELECTRIC TOOLS
AIR IMPACT WRENCHES • AIR COMPRESSORS • PNEU-DRAULIC PUMPS

Wage Rates Up 7.9 Cents

Notable wage increases among unionized employes of the nation's trucking industry have been reported for the fourth quarter of 1949 by the Industrial Relations Department of the American Trucking Associations, Inc.

The report, based on a study by Herbert F. Floyd, ATA labor agreement analyst, stated the average wage increase on a nation-wide basis was 7.9 cents per hour and three-eighths of a cent per mile. The average increase was 2.7 cents per hour more than the average increase reported in 981 other general industrial settlements made public during the fourth quarter.

Trucking industry average increases for the first three quarters of 1949 were 12 cents, 7.9 cents and 6.8 cents, respectively.

According to the report, an analysis of 86 settlements made during the fourth quarter revealed a trend to two-year agreements, most of which contained an automatic wage boost effective after one year, while health and welfare benefits, relatively new to the trucking industry, also were found in a number of new agreements.

It was regarded as significant that only a few of the agreements called for any revisions in hours or working conditions.

SPINNING POWER



The Engineered Battery

**SPLIT-SECOND
STARTING**

12 FACTORIES TO SERVE YOU

Each produces batteries identical in quality and performance with those produced at every other plant. Wide dispersal of these factories nationally insures lowest possible freight costs and faster service.

GLOBE-UNION INC.

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Always Insist On
KEN-TOOL
...they're "Job Designed"

Ask For KEN-TOOL
Replaceable-Rubber-Head

or
**KEN-TOOL Standard
Tire
Hammers**

"Job Designed" for changing tires
use either KEN-Standard or
Replaceable-Rubber-Head Tire
Hammers. Built stronger to last
longer...real time and labor saver!

T-35
T-33-R
T-34
T-31
T-36
T-11-R
T-11-C
T-11-B
T-11

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OF TIRE AND WHEEL CHANGING TOOLS
The KEN-TOOL Mfg. Co.
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BE SURE
the trademark "Timken" is on
every tapered roller bearing you
buy. Timken bearings are first
choice with truck and trailer
manufacturers. Remember—for
the best in bearings—

IT'S "TIMKEN"
Trademark Reg. U. S. Pat. Off.
The Timken Roller Bearing Company
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**MORE
PROTECTION!
MORE MILEAGE!**

CLEVELAND CHAIN

THE CLEVELAND CHAIN & MFG. CO.
Cleveland 5, Ohio

DEVILBISS

Spray-Painting Equipment • Spray
Booths • Canopy Exhaust Systems •
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Distributors or factory sales and service
representatives everywhere

THE DEVILBISS COMPANY
Toledo 1, Ohio

Functional Costs

Continued from Page 174

mission for Class I Motor Carriers of Property).

Purchased transportation vehicles are those which are furnished to the fleet owner with drivers and on which all expenses of operation, including drivers' wages, are borne by the persons furnishing the vehicles.

Assigned Service pertains to pre-dominant assignment—either Line Haul or Pickup and Delivery.

Line haul includes vehicles assigned to operations in intercity (over-the-road) service and to peddle trips between cities. Occasionally, a line haul vehicle will be used in pickup and delivery service within a terminal area. The mileage and hours involved in such pickup and delivery service will appear on city drivers' reports, and should be posted to vehicle record forms in the Pickup and Delivery section. Vehicles assigned to overnight intercity runs, which are also used in pickup and delivery service during the day, should be classified as line haul.

Pickup and delivery vehicles are those used in pickup and delivery service within a city, including contiguous territory. Pickup and delivery vehicles, when used in intercity service, will be designated on intercity drivers' reports, and mileages operated should be posted in appropriate state columns under general heading "Intercity Mileages."

Summary of mileages operated may be shown on lines provided under the appropriate column heading. Total of all mileages operated—intercity, pickup and delivery and local service—becomes an accurate basis for calculating costs per mile.

Trailer mileages should be recorded for managerial control but are not to be considered in the preparation of statistical reports. A combination tractor-trailer mile is considered as one mile for statistical purposes. Only power unit mileages are includible in statistical statements. Occasionally, a tractor will move bob-tail (without trailer). Consequently, total tractor miles for the month will not necessarily agree with total trailer miles.

Monthly summaries of mileages operated, by individual units, separated between trucks, tractors, and trailers, and further separated between owned, leased, and purchased transportation for each type of equipment, form the framework for essential statistics.

Mileage records may also be used to furnish mileage figures for the purpose of preparing statements of the operations of leased equipment for payments on a mileage basis.

(TURN TO PAGE 178, PLEASE)

HEAVY DUTY MOTOR TRUCKS

GASOLINE ELECTRIC GENERATING SETS

DUPLEX

TRUCK COMPANY
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THE COMPLETE LINE
that
Completely Satisfies

Since 1906

The
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Promote Safe Driving... Reduce Maintenance Costs... Increase Profit

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THE TIME-TESTED RECORDING SPEEDOMETER

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You gain the confidence of your drivers when you equip your vehicles with Tachographs. They promote safe driving which results in reduced maintenance costs and increased profits. Records prove that over-the-road vehicles equipped with Tachographs have fewer accidents... spend less time in the repair shops... and earn lower insurance rates.

The Tachograph gives a charted record of the entire trip—When engine started... How long engine idled... When vehicle was in motion... How fast it traveled... When vehicle stopped... and distance traveled between stops. Mail coupon for complete information.

★ ★ ★

"TACHOGRAPH SAVED MY TEN YEAR RECORD OF SAFE DRIVING" says...

Ray A. Johnson,
Driver for STANDARD OIL COMPANY

"With a ten year record of no accidents, I was accused of hitting a little boy. The highway patrol flagged me down, but my Tachograph chart showed I was stopped at the time of the accident. The officer then admitted the witness had only said it was a big red truck. I was allowed to proceed on my way."

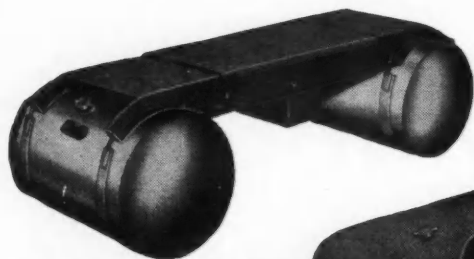


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Snyder Safety Cylinder Tank and Tool Box Units use up wasted space by providing storage for tools, chains, power jacks, danger flags, etc. The jackwell is upright to prevent possible escape of jack fluid.



SNYDER SAFETY TANKS

A reflection of confidence in safety, dependability, and proven performance.

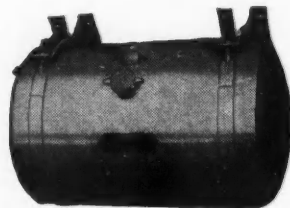
Snyder Safety Saddle Tanks occupy wasted space between the cab and fifth wheel. The top deck plate provides a safer means of crossing the chassis and carrying material, hose lines and spare tires. Fuel capacity of 75 to 150 gallons.

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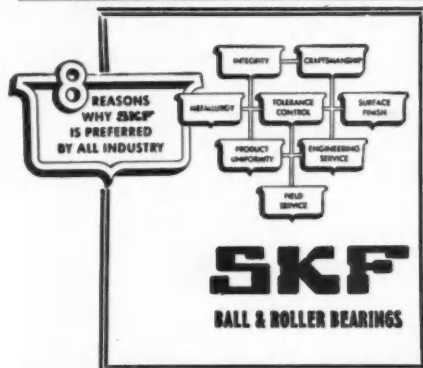
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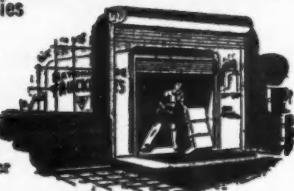
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THE KINNEAR MFG. COMPANY
2100 20 Fields Ave. • Columbus 16, Ohio

Functional Costs

Continued from Page 176

Total owned vehicle mileages, or total of all vehicle mileages, as appropriate, which are reflected on monthly summaries, and total general ledger expense accounts may be used in the calculation of functional costs for the entire system operation.

Postings One Hour per Day

POSTINGS to the Vehicle Mileage and Cost Record require a minimum amount of time. One hour per day should be sufficient to post mileages and hours, from intercity and local drivers' reports, by states, for 75 vehicles. Time required to post cost data depends on the extent of details desired. Posting of cost information will probably consume an additional hour for the same number of vehicles.

The forms should be placed in vehicle number (numerical) order for the month in order to facilitate location of the proper form when posting mileages, hours, and costs.

Practical Application

THE mileage record portion of the form will definitely indicate the extent of utilization of each unit of equipment and of manpower.

A comparison of average miles operated and average costs per mile may be made from month to month, and with other fleet owners having similar operations. A poor showing may be traced to certain expenses or group of expenses, or to lack of full utilization of individual vehicles.

Costs per mile should be checked carefully for changes from month to

month. A variation of a fraction of a cent in costs per mile may indicate substantial increases in expenses which would require corrective action.

Pickup and delivery mileage statistics may be used for the purpose of determining the efficiency of equipment by calculating miles per cwt. or load handled, or revenue produced, driver cost per mile and per hour, and average speed per vehicle or driver hour. If costs appear to be excessive on short runs, it may be desirable to lengthen the city operation or to consolidate pickup and delivery schedules to obtain reductions in expenses and continue to maintain efficient service.

Comparison of costs between different city pickup and delivery schedules may establish the capability of specific vehicles or drivers and may indicate cause for corrective action.

Data will be available for determination of the average time to make a pickup or a delivery.

The intelligent use of mileage statistics, particularly mileage costs, will form a basis for future managerial policies and, if necessary, for correction in the conduct of operational activities.

The determination of a program for equipment replacement may be made on the basis of per-mile costs of various makes and models of vehicles.

Table 1, page 59, shows per-mile costs, pertaining to 1949 operations, obtained from the books and records of three of the larger Middle-West motor carriers of general freight. On the assumption that operations of the three (TURN TO PAGE 180, PLEASE)

Classified Advertisement

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Firestone

Full Advanced RIMS

INCREASE TIRE MILEAGE

ONLY facts count with fleet operators — facts that mean *lower operating costs*. That's why more and more trucking companies are changing over to Firestone *Full Advanced Rims*. Read what operators say after trying Firestone R-5° Advanced Rims. It's typical of what hundreds of others are learning every day. Closely kept comparative cost records definitely prove that trucks on Firestone *Full Advanced Rims* show *much lower tire-cost-per-mile* than trucks on old style rims.

Firestone Full Advanced Truck Rims are entirely new — designed especially for today's long high speed runs. Five major improvements are built into these rims to give you longer original tread mileage and more retread miles. Sizes in either demountable (R-5°) or un-demountable (RH-5°) types are available for trucks of one ton capacity or over.

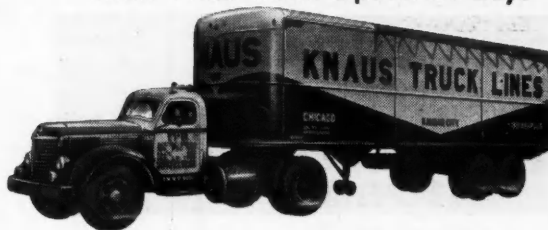
If you would like to know how you can lower tire costs, phone your nearest Firestone Tire Dealer or Firestone Rim Distributor.* He will gladly show you how Firestone Full Advanced Rims will save you money.

*All Firestone Rim Distributors are members of the National Wheel and Rim Association.

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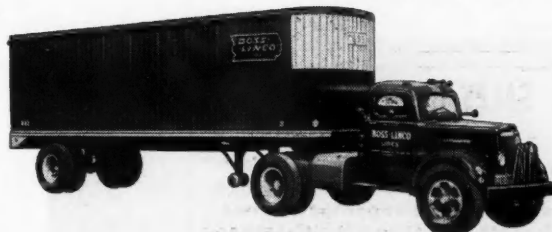
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KNAUS TRUCK LINES



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Functional Costs

Continued from page 178

carriers are similar, there is an indication that several expense accounts should be more closely checked for possibility of reduction in costs. On the other hand, if Carrier A operates over rough roads, the per-mile cost of 5.29 for Repairs and 9.73 for Total Equipment Maintenance Expense would not be excessive.

Differences in Total Terminal Expense costs usually reflect the extent of local operations in larger cities where terminal costs are higher.

Cargo Loss and Damage Expense costs readily reflect the extent of careful handling given freight by a carrier.

Many other observations may be made and conclusions drawn from a careful analysis of comparative costs.

Other Information Available

THE following statistics, individually and collectively, in addition to many others, can be readily available through the use of more adaptable records:

Intercity mileages, separated by states, for trucks, tractors and trailers.

Pickup and delivery and local service mileages and hours for trucks, tractors, and trailers.

Separation of trucks, tractors, and trailers between owned, leased, and purchased transportation vehicles.

Gallons of fuel and fuel cost per mile. Oil cost per mile.

Repairs and servicing expense per mile.

Tire and tube expense per mile.

Intercity mileage operated by intercity vehicles.

Intercity mileage operated by pickup and delivery vehicles.

Pickup and delivery mileage and hours operated by pickup and delivery vehicles.

Pickup and delivery mileage and hours operated by intercity vehicles.

Total system revenues and expenses per mile.

Average monthly mileage for owned trucks, tractors, and trailers.

END

(Please resume your reading on P. 60)



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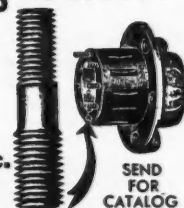
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